SOME FOUNDING PAPERS OF THE UNIVERSITY OF ILLINOIS

with an Introduction by
DAVID D. HENRY

compiled by RICHARD A. HATCH

These documents and papers by founding fathers of the University of Illinois not only re-create the eloquence of men caught up in a great cause — the birth of the Land-Grant movement — but also constitute an important body of source material for a definitive period in the social and educational history of Illinois and the nation.

In the papers, addresses, and legislative documents here reprinted, ideas central to the founding and growth of the Illinois Industrial University are set forth by such pioneers in higher education as Newton Bateman, a vigorous campaigner for the development of Illinois common schools and a significant contributor to the national movement for public education; Jonathan Baldwin Turner, whose proposals to Representative Justin Morrill of Vermont eventually resulted in the Morrill Act, or Land-Grant College Act of 1862; and John Milton Greg-

26s. 6d. net

SOME FOUNDING PAPERS OF THE UNIVERSITY OF ILLINOIS

SOME FOUNDING PAPERS OF THE UNIVERSITY OF ILLINOIS

Some Founding Papers of the University of Illinois

with an introduction by
DAVID D. HENRY

---

compiled by RICHARD A. HATCH

University of Illinois Press, Urbana, Chicago, and London, 1967

This volume is one of several being published under the sponsorship of the Committee on the Centennial of the University to observe the one-hundredth anniversary of the founding of the University of Illinois.

Manufactured in the United States of America. Library of Congress Catalog Card No. 66-21365.

CONTENTS

INTRODUCTION 1

THE ADDRESS OF DR. NEWTON BATEMAN
AT THE INAUGURATION OF THE UNIVERSITY 5

"A STATE UNIVERSITY FOR THE INDUSTRIAL CLASSES,"
BY JONATHAN BALDWIN TURNER 33

EXCERPT FROM A LETTER
BY JONATHAN BALDWIN TURNER 51

THE LAND GRANT ACT OF 1862 53

THE ILLINOIS LEGISLATION 59

REPORT OF THE COMMITTEE ON COURSES
OF STUDY AND FACULTY FOR THE
ILLINOIS INDUSTRIAL UNIVERSITY 73

THE INAUGURAL ADDRESS
OF REGENT JOHN MILTON GREGORY 99

ILLINOIS INDUSTRIAL UNIVERSITY 115

THE ADDRESS OF JONATHAN BALDWIN TURNER
AT THE LAYING OF THE CORNERSTONE
OF UNIVERSITY HALL 135

INTRODUCTION

In the papers here reprinted the central ideas underlying the founding of the University of Illinois are set forth by men who took part in the actions which led to its establishment. Hence, their comments have the vigor of advocacy, the prophecy of men who believe that they are caught up in a great cause, and the overstatement characteristic of the reformer. There is also an eloquence not concealed by the rhetorical embellishments characteristic of the oratory of the mid–nineteenth century.

The documents have the ring of greatness, that quality which emerges in public papers where ideas and ideals, long since validated, are joined in pronouncements in historically significant settings.

While the papers are important source material for the social and educational history of Illinois in the period from 1830 to 1875, they are also of interest to the student of educational development elsewhere in the country. Without entering into the argument as to who was *the* founder of the Land-Grant idea, it is agreed that the ferment in Illinois was an important factor in spurring a national movement. Hence, the documents here presented have to do with more than local history and with more than the development of a single institution.

The reader will catch here, too, a "feel" for the flow of history. Bateman's career reached back into the early decades of Illinois when there was no free school, no railroad, no canal, no city, when "Chicago numbered less than one hundred souls; when all this region, for leagues in every direction, was a silent wilderness, and St. Louis, then an inconsiderable village, was our nearest market and only source of supplies." Thus, the words of this pioneer, spoken on the occasion of the inaugural of the Illinois Industrial University, created a bridge over a long period into our own time, when he foresaw the joining of the "ten thousand public schools of the State . . . with the ten times ten thousand public schools of the Union, in

voicing down to coming generations the incarnate truth of the age and of God, that culture, as well as liberty, is the everlasting heritage of the race, and that whoso would restrict to the few what belongs to all, is a traitor to the people. . . ."

Strong men, with great ideas, spoke strongly and often eloquently. They sought to align higher education with the democratic impulses of their time, and what they had to say is relevant to those in the 1960's who are engaged in the same effort.

Without certain knowledge of the outcome of their labors, the planners and supporters of the state university concept were guided from the first by attitudes which are still valid — faith in the efficacy of learning by the many, vigorous application of the democratic idea to educational service, adaptability in meeting each new task so as best to serve the welfare of the people, loyalty to the high mission of the university in any setting at any time — the advancement of knowledge and the search for truth.

The Land-Grant movement was rooted in the social and political elements of the times. In his recent lectures on the history of the Land-Grant colleges and state universities, Allan Nevins makes the point that new theories as to what properly constituted higher education had been evolving for at least 75 years before the Morrill Act. The change in theories of higher education, in turn, was given momentum by a revolutionary spirit of innovation and optimism. "Every year the faith of the Western Nations in progress was strengthened by social, scientific, technological, and cultural advances."[1]

Once there was a change in theory as to what education is or should be, the corollary question became a central concern — who should have the new education and what social purpose should it serve?

In answer, Mr. Nevins emphasizes, the rising forces for democracy in America gave a resounding response. The people had come to believe "in an open society; every person free to think, speak, write, and learn without restraint; free to rise to the height of his or her capacities, defying efforts at social stratification; free to shift from poverty to wealth, from ignorance to learning, and from subordination to command — a society, in short, free in every sense of the word."[2]

Although the social setting was encouraging, it still took Pugh, Turner, Morrill, Thomas Green, Clemson, and many others in dif-

[1] Allan Nevins, *The State Universities and Democracy* (Urbana: University of Illinois Press, 1962), p. 2.
[2] *Ibid.*, p. 21.

ferent parts of the country to win the support of their constituencies and, later, men like Gregory to lead the effort to have their ideas take form in terms of buildings, farms, experiment stations, curricula, and organization. While the aspiration for people to have the opportunity to develop their talents educationally is a democratic impulse in clearest form, that ideal became realizable only in the context of obvious social benefits which justified the required public expenditure of funds.

To implement the concept of the free public university, under the control of and supported by the people, the state university early accepted the premise that its work should be close to the people, to their needs, their hopes, and their welfare. The traditional and the conventional in education would have their place, but the institutional leaders and others fought against academic restraint and economic limitations which threatened to delay the application of education to the intellectual, cultural and economic needs of the people.

The papers and documents here published are issued in connection with the University of Illinois Centennial observance of its founding.[3] In a sense, they are "founding papers," relating the history and social context of the establishment of the University by a number of men involved in the momentous events of the period. I believe, however, that they also will be of interest to other institutions and students of educational and social history, because they reflect the forces and currents of the period which led to the establishment of other universities in other places and which resulted in a profound alteration in the course of higher education generally.

That the papers are very human documents will have some attraction for the general reader. These spokesmen for great ideas were not merely essayists and moralizers; they were the "activists" of their time and their activities as well as their philosophies importantly affected a movement and ultimately a nation.

Illinois may be proud that an ardent and effective advocate of the Land-Grant idea, from Illinois, Jonathan Baldwin Turner, was supported by a President from Illinois, Abraham Lincoln, and that a university in Illinois led by a remarkable educator, John Milton Gregory, early placed this state in the forefront of one of the great educational developments in our national history.

David D. Henry
University of Illinois

---

[3] February 28, 1967–March 11, 1968.

The inauguration of Illinois Industrial University took place in the chapel of the University Building on March 11, 1868, just nine days after the first students were admitted to classes. The ceremony took place before the Trustees, students, distinguished citizens from the state, and a large group of local people.

In the first major address of the morning, Dr. Newton Bateman, State Superintendent of Public Instruction, related the history of pressures toward the establishment of the University, culminating in the legislation of 1862 and 1867. Looking to the future, he examined the aims and philosophical bases of the new University, and the mission which it was hoping to fulfill.

After his graduation from Illinois College at Jacksonville, Dr. Bateman had been principal of schools in St. Louis, Missouri, and Jacksonville, Illinois, and had been Professor of Mathematics at St. Charles College, St. Charles, Missouri. In 1858 he was elected Illinois State Superintendent of Public Instruction, serving until 1863, and again from 1865 until 1875. Dr. Bateman campaigned vigorously to develop the common schools in Illinois and made significant contributions to the national development of public education.

THE ADDRESS OF DR. NEWTON BATEMAN AT THE INAUGURATION OF THE UNIVERSITY*

A great State has just embarked in a great enterprise, and here, at the very threshold, it is fit that we pause a moment to consider the history of that enterprise, its nature, and how we may hope to conduct it to a successful issue.

What, then, is the Illinois Industrial University, which we to-day inaugurate — for what ends has it been established — and by what means shall we seek to achieve those ends?

The practical realization of nearly every grand movement of the forces of civilization, is the sequence — usually the long-delayed, long waited-for sequence — of many silently-working, far-distant causes — the final embodiment of the struggling thoughts, aspirations and yearnings of the public mind.

To this historical fact the Institution, which we to day place in the grand column of the educational forces of this commonwealth and of the nation, is no exception. It is not a thing of yesterday; it is born of no transient impulse of the public mind — of no meteoric flash of popular enthusiasm — no sudden faith in the royalty of labor, and the exaltation of the laborer. The ideas which underlie and have at length fashioned it into being, have long been before the American people, and are indeed, in some sense, co-eval with the existence of the Republic itself. Washington and Jefferson, and many others of that day, were practical agriculturists, and did much

* March 11, 1868. From the *First Annual Report of the Board of Trustees of Illinois Industrial University,* 1868.

to foster a love of industrial pursuits among their countrymen, and to lay under contribution the treasures of science, to enhance the productiveness of soils, and ennoble the employments of husbandry. And from that period to the present, there have been those who, from time to time, have directed public attention to the transcendent importance of this great department of our national industries, and to the need of institutions of learning devised and conducted with more direct reference thereto.

But the era of great combined movements, in this country, in behalf of the better education of the masses for the manual industries of life, may be said to have commenced about twenty years ago. And, whether considered in the light of the magnitude of the interests involved; the millions of people concerned in the issue; the grandeur of the thoughts and conceptions advanced; the number, eminence and power of the men engaged; or the undaunted persistency and faith with which the contest has been carried on — whether viewed in one or all of these aspects, this era of effort and conflict for industrial education deserves to be called *sublime.*

Convention after convention was held; league after league was formed; society after society was organized; pamphlets, appeals and addresses were written and published by tens of thousands of copies; petitions and memorials went up from the lakes to the sea; the law-making power was invoked, and earnest, determined men thundered again and again at the doors of general Assemblies and Congressional Halls, demanding to be heard on this great question. At times, in some of the States, the issue went to the hustings, and even the tumultuous roar of rival political parties was awed and hushed for a time by the great voice of the toiling masses, demanding an education suited to their needs. Repeated disappointments and defeats only resulted in fresh combinations, more determined efforts, and large accessions of strength. Able and gifted men from every pursuit in life, from every class of society, and from every quarter of the Union poured into the swelling tide the contributions of their learning, experience and genius.

In the West, the man whose voice rang out earliest, loudest and clearest, in this great movement — whose words pealed and thundered through the minds and hearts of the people, and the round shot of whose tremendous broadsides of irrefragable facts and logic, and fiery rhetoric, plowed and plunged and ricochetted through these prairies, with an energy and vehemence that no bulwarks of ignorance or apathy could withstand, and which brought nearly

every farmer and artisan hurrying to his standard, from far and near, and put in motion the imperial columns of our free-born yeomanry — the man who threw into the struggle not only the best energies of his mind, but the unwavering faith of his soul and the deepest longings of his heart, and who plead for the uplifting and regeneration of the masses and for the "millennium of labor," as the patriot pleads for his country and the christian for the salvation of God — the man whose able reports, instructive addresses, and thrillingly eloquent speeches were caught up and re-echoed by the enlightened press of the whole country, without regard to sect or party, and which furnished at once the material and the inspiration of auxiliary and co-operative movements and organizations in many other States — and the man who, as I believe, through all these multiplied and overwhelming labors, was animated not by considerations of self-aggrandizement or sordid gain, but by the loftier purpose of serving his race and honoring God by uplifting and blessing the toiling millions of His children — that man was JONATHAN BALDWIN TURNER, of Illinois.

This is not blind adulation nor fulsome eulogy. I know whereof I affirm; I am familiar with the procession of events to which I have referred, and the connection of that great and good man therewith; and I could not suffer this glad day to pass without a few words in vindication of the truth of history, and a grateful recognition of his services. I speak in this matter only for myself, and at the promptings of my own feelings and judgment — no other person is in any manner responsible for what I have said, or may say, in this regard.

And if I speak warmly of Prof. Turner as a man, it is because I have known him over thirty years, during twenty of which he was my near neighbor, during four of which he was my teacher, and during all of which he has been my friend, ever kind and true. If his right to the place to which I have assigned him as the western pioneer and leader in this great educational movement, is challenged, I refer to the printed records and documentary history of the whole agitation, from the convention at Granville, in November, 1851, down to the passage of the bill creating this Institution, in February 28th, 1867. Through all those sixteen years of struggle and effort, you will find him towering up as the central figure, the very Ajax of the fight; closely identified with every phase of the controversy, and with all its vicissitudes of fortune. His reports, addresses, memorials and other papers, are scattered through all the

earlier published Transactions of the State Agricultural Society: the record of his personal labors is in fact, in epitome, a record of the whole movement.

But I have also referred to the commanding ability and power with which he led the forces of the people, and championed their cause in the grand march to the gates of Washington, and the final achievement of the supreme purpose — *national recognition* and aid by acts of Congress. None who have heard him will dissent: let those who have not, read his ringing oration on the "Millenium of Labor," delivered in 1853; or his Plea in behalf of "Industrial Universities for the people," published in 1854; or his essay on "Industrial University Education," prepared by special request of the Commissioner of the National Bureau of Agriculture, and scores of other papers written and published during that period. The recognition, too, of the signal energy and grasp with which he handled the profound themes involved in the discussion, was general and hearty, not only from the rural and metropolitan press of the country, both East and West, but also from the solid columns of some of the oldest and stateliest Reviews, and even from Presidents and Faculties of existing Colleges and Universities, although utterly dissenting from and vehemently protesting against his views and opinions upon many points.

And this leads me to observe, that although I believe that Mr. Turner is justly entitled to the high honor of being called the *Father* of Industrial Education in the West, and that he should be (and sooner or later will be) held in grateful remembrance for having done more than any other one man in the United States to *arouse, inspire* and *vitalize* the public mind on this subject, impelling to investigation, thought and action, and thus hastening by many years, if not by a whole generation, the results already attained — yet I doubt if there is a man in the State, or even in the Union, who accepts, in detail, his theories, views, opinions and methods in respect to Industrial Universities, or to the practical education of farmers and mechanics, or even his theories of educational philosophy — certainly I do not. I regard not a few of his opinions and schemes on these subjects, as at war with both fact and reason — belonging to the realms of Utopia, and not to those of reason or history.

But then, Prof. Turner does not *expect* any body to think and believe and act precisely as he does — he would rather they would not — it would savor too much of a blind faith, which is the espe-

cial horror of his soul. He would a thousand times rather a man would *fight* him from honest conviction, than *indorse* him from stupid servility. I think that, upon the whole, he rather relished the criticism of the man who, after listening to an address from him on a certain occasion, remarked, "that was a magnificant thing, *but I don't believe a word of it.*" He cares nothing for the *ipsisima verba,* in speaking or writing. So that he can get his harpoon well into the heart of the ugly whales of error that prowl God's great ocean of truth, he is not particular how it is done, or who drags the dead monsters to the shore. So that he effectually breaches the walls behind which cheats and humbugs are intrenched, he cares little what people think of his engineering. When pitted against an antagonist, his sole purpose is to knock him down, in the speediest and most effectual manner possible, and so that everybody can see that he *is* down, regardless of the rules of pugilistic science.

A sample or two will best illustrate his way of "moving upon the enemy's works:"

Speaking of the causes of failure in previous attempts to establish Industrial Colleges, he pulverizes one of them in the following style:

"One capital and fatal error has been the idea that we should send a boy to school to learn to *work,* and not simply to learn to *think;* thus absurdly attempting to teach, by public endowment and munificence, the little arts of *personal manipulation,* instead of the magnificent *science* of UNIVERSAL SUCCESS. Nothing could be more fatal. When I have taught a boy merely to hold a plow, I have only taught him to be a two-legged jackass, twin brother to the four-legged team in front of him. But when I have taught him truly and *scientifically* all the mighty mysteries of seas, stars, oceans, lands and ages that are concerned in that act of plowing, I have made a man of him — had we not better say, an angel? Art, in the sense of mere labor, mere servile imitation alone, is only animal; the common property of asses, dogs and monkeys. But true labor, inspired by universal science and intelligence, is not only characteristically human, but also Divine. What could be more absurd than to take a hundred boys, in their teens, away from their parents, the year round, and set them to dabbling with a hundred teams for a few hours per diem, half of which break their traces and run away the first hour, under the absurd pretext of teaching these boys how to plow? When Almighty God created the heavens and the earth, and ordered man to 'eat his bread by the sweat of his brow,' he created and most liberally endowed the best possible University for learn-

ing all such mere manual arts; and if we expect to supersede Omnipotence by grants of land for endowments in this line, it will prove worse than a Bull Run defeat; for no institution for teaching the arts and the habits of bare manipulation and industrial skill, can ever be endowed at all comparable with those which the great Father of All has most munificently spread abroad over every household, every shop, and every field, throughout the civilized globe. The *principles of science,* therefore, and not the bare manipulations of art, should form the *sole end* of Industrial Universities."

So wrote Prof. Turner, four years ago, demolishing a great fallacy and enunciating a great truth, in a manner not to be resisted or forgotten, whatever may be said of his zoological illustrations.

But I was briefly tracing the antecedent steps, the grand co-operative movements, which have culminated in the gift to us and to our children of this noble school of the people. When I turned aside, at the promptings alike of strong personal regard and a sense of justice, to speak of the labors of Prof. Turner, I intended to say but a very few words — merely to record my sense of the gratitude we owe for his long and powerful advocacy of the principles upon which this University is founded; the close and unquestionable connection of his services with the success that has been achieved, and my regret that he is not here to-day to mingle with us in congratulations for progress made, and in prayers for the continued blessing of God upon the school which we here consecrate to the reduplication of the products of labor, by subordinating thereto the forces of science, and to the exaltation of the toiling masses by putting them into closer and more intelligent communion with Nature, and Truth and God. I trust that I shall not, herein, be deemed to have been unmindful of the proprieties of the occasion.

Resuming the antecedent historical thread whose sinuous but unbroken course will be seen to have led straight on to the noble University which we to-day inaugurate, I observe that the first tangible result of the wide-spread and extraordinary agitation of the subject of industrial University education, which began with the Granville convention in 1851, and soon pervaded the whole State, and in behalf of which three more great Industrial State Conventions had already been held — was a Memorial to the General Assembly of Illinois, praying that body to invoke the powerful aid and resources of the National Government itself, in furtherance of the object.

This memorial was drawn up and presented in January, 1853, and sets forth in cogent and eloquent terms the claims of the enter-

prise upon State and National regard. As a condensed and forcible statement of the argument, from the stand point of the farmers and agriculturists of the country, I do not think it has been surpassed.

Its conclusion, showing the comprehensive views, and advanced position taken in this State more than fifteen years ago, is as follows:

"We, therefore, respectfully petition the Honorable Senate and House of Representatives of the State of Illinois, that they present a united Memorial to the Congress now assembled at Washington, to appropriate to each State in the Union, an amount of public lands, not less in value than *five hundred thousand dollars,* for the liberal endowment of a system of Industrial Universities, one in each State in the Union, for the more liberal and practical education of our industrial classes, in their various pursuits, for the production of knowledge and literature needful in those pursuits, and developing, to the fullest and most perfect extent, the resources of our soil and our arts, the virtue and intelligence of our people, and the true glory of our common country. We further petition that the Executives and Legislatures of our sister States be invited to co-operate with us in this enterprise, and that a copy of the Memorial of this Legislature be forwarded by the Governor to the Governors and Senates of the several States."

Note the magnificent conception, the patriotic and continental sweep of that Memorial — *five hundred thousand dollars'* worth of the public domain, for the endowment of a system of Industrial Universities, one in each State of the Union! And this, I believe, was the initial step, the original suggestion, the first formal call ever made upon the National Government to endow these schools of the people — the first banner uplifted on the continent to lead the millions, through the puissant arm of the Republic itself, onward towards the millennium of labor. The simple grandeur of the conception, its startling munificence and universality, the majestic visions of the future which it invited, educated and inspired the whole American people, in this direction, more than a thousand elaborate orations could have done, and evoked a spirit that rested not till the prayer of that great petition was substantially answered by acts of Congress in conformity therewith. Is there not truth as well as boasting in the remark of one, that "the American people instinctively *hate little things?*" The author of that Memorial, and hence the first man in the United States, so far as I know, who ever advanced the great idea of the *National endowment* of Industrial

Universities, an idea which has since ripened into such glorious fruitage, was an Illinoisan — the same of whom I have already spoken.

Scarcely was the ink of that Memorial dry, when it was presented, in due form, to the Legislature of the State, then in session. The reception it there met with was worthy alike of its commanding importance, and of the forecast and statemanship of a great Commonwealth. Instead of being "laughed down the wind," as the wild fancy of some dreaming enthusiast; or shuffled off to some unsympathising committee, there to sleep the sleep that knows no waking; or bartered away, by intrigue, for some wretched mess of local or political pottage — instead of this, that General Assembly *made way* for that grand message from the People, as the Lords and Commons make way for the King! acknowledging the majesty of its presence, and the exceeding glory of which it was prophetic.

Without unnecessary delay it came before the House, able and eloquent advocates sprang to its defense, opposition quickly yielded, and in due time, to their everlasting honor, that body unanimously passed the following resolutions. Though not strictly necessary to my present purpose, they are not irrelevant, and standing as they do at the very gateway of the great national movements that followed, I cannot resist the desire to cite them:

"WHEREAS, the spirit and progress of this age and country demand the culture of the highest order of intellectual attainment in theoretic and industrial science: *And, whereas,* it is impossible that our commerce and prosperity will continue to increase without calling into requisition all the elements of internal thrift arising from the labors of the farmer, the mechanic, and the manufacturer, by every fostering effort within the reach of the Government: *And, whereas,* a system of Industrial Universities, liberally endowed, in each State of the Union, co-operative with each other, and the Smithsonian Institution at Washington, would develop a more liberal and practical education among the people, tend the more to intellectualize the rising generation, and eminently conduce to the virtue, intelligence, and true glory of our common country: therefore be it

"Resolved by the House of Representatives, the Senate concurring herein, That our Senators in Congress be instructed, and our Representatives be requested, to use their best exertions to procure the passage of a law by Congress donating to each State in the Union an amount of public lands, not less in value than *five hundred*

thousand dollars, for the liberal endowment of a system of Industrial Universities, one in each State of the Union, to co-operate with each other, and with the Smithsonian Institution at Washington, for the more liberal and practical education of our industrial classes and their teachers; a *liberal* and *varied* education, adapted to the manifold wants of a practical and enterprising people, and a provision for such educational facilities, being in manifest concurrence with the intimations of the popular will, it urgently demands the united efforts of our national strength.

"*Resolved,* That the Governor is hereby authorized to forward a copy of the foregoing resolutions to our Senators and Representatives in Congress, and to the Executive and Legislature of each of our sister States, inviting them to co-operate with us in this meritorious enterprise."

These resolutions were promptly, heartily, and as the records show, *unanimously* concurred in by the Senate, and, on the 8th day of February, 1853, received the approval of the Governor, who lost no time in forwarding authenticated copies, as requested in the last resolution; thus completing the glorious and unbroken record of Illinois, more than fifteen years ago, upon this great public measure.

The past at least is secure, and I will not disguise the pride I feel in thus adducing the irrefragable testimony of history to the fact that this Empire State of the West has the high and unchallenged honor of being the first to conceive and advance this idea and form of Industrial Education by national appropriation, and the first also to petition Congress, by a formal and unanimous vote of her Legislature, to grant the endowment.

Those ringing resolutions of our General Assembly not only elicited approving responses from all quarters, but seemed also to kindle the slumbering thoughts and sympathies of the people into a blaze of enthusiasm, and to inaugurate, at once and with resistless power, that decade of splendid efforts throughout the Union, which received their triumphant culmination in the Act of Congress of July 2, 1862.

A leading paper of New York City, Feb. 26, 1853, in an eloquent editorial upon our joint resolutions, declared: "Here is the principle contended for by the friends of practical education abundantly confirmed, with a plan for its immediate realization. And it is worthy of note, that one of the most extensive of public land States (Illinois), proposes a magnificent donation of public lands to each of

the States, in furtherance of this idea. The Legislature of Illinois has taken a noble step forward, in a most liberal and patriotic spirit, for which its members will be heartily thanked by thousands throughout the Union. We feel that this step has materially hastened the coming of scientific and practical education for all who desire and are willing to work for it. It cannot come too soon."

Similar opinions were expressed by the leading newspapers of the whole North and East, and by all the principal agricultural journals and periodicals then extant, (as I could prove by copious extracts did time permit), while from the far South responses no less emphatic and cordial, swelled the accumulating volume of public opinion. The key-note struck by Illinois, was echoed by the Governors of other States in quick succession, in their annual messages — while orators, statesmen, authors, with College Presidents and Professors, the ablest and most gifted and honored men of the nation, entered the lists and mightily contributed to arouse, instruct and guide the public mind. Edward Everett, Marshal P. Wilder, Henry W. Cushman, John W. Lincoln, and others of like eminence, headed a movement in behalf of the liberal education of the industrial masses, in Massachusetts; while upon a single committee appointed by a convention held in the State of New York, in furtherance of the same cause, appear the illustrious names of Francis Wayland, Bishop Potter, Washington Irving, President Hitchcock, and Professors Pierce, Henry, Bache, Mitchell, Dewey, and others.

But enough; the columns of the people were in motion, their Representatives were already in Congress, the great battle was fought and won, and it only remained to embody the popular will in the forms of law.

Accordingly, the Congress of the United States recognized and gave effect to these great principles by the passage of an act entitled,

"AN ACT donating Public Lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts."

This act was approved on the 2d day of July, 1862. Its most important sections are the *first,* which makes the endowment, and the *fourth,* which declares to what objects and uses the fund shall be devoted. The first section reads as follows:

"That there be granted to the several States, for the purpose hereinafter mentioned, an amount of public land, to be apportioned to each State, in quantity equal to *thirty thousand* acres for each Senator and Representative in Congress, to which the States are

respectively entitled by the apportionment under the census of 1860."

The fourth section reads as follows:

"That all moneys derived from the sale of lands aforesaid, by the States to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per cent. upon the par value of said stocks; and that the money so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished, and the interest of which shall be inviolably appropriated by each State, which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college, where the *leading object shall be, without excluding other scientific and classical studies*, and including military tactics, to teach *such branches of learning as are related* to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively provide, in order to promote the *liberal and practical* education of the industrial classes in the several *pursuits* and *professions* of life."

The Legislature of Illinois promptly signified its acceptance of the grant, upon the conditions imposed by the act of Congress, and, at its last session, consummated the whole transaction by passing, 1st, "AN ACT in relation to the *location* of the Industrial University, approved January 25th, 1867. 2d. "An ACT to provide for the organization and maintenance of the Illinois Industrial University," approved February 28, 1867. 3d. AN ACT supplemental to the before-mentioned act, approved March 8, 1867.

In obedience to the requirements of the first section of the act, the Governor appointed twenty-eight trustees, who, with the members *ex-officio,* thirty-two in all, met on Tuesday, the 12th day of March, 1867, in compliance with the law, and the summons of the Governor, and, after being solemnly sworn into office, proceeded in due form, to organize as "The Board of Trustees of the Illinois Industrial University."

Having thus briefly traced the history of this Institution from its dim foreshadowing in 1851, through the successive periods of its individual, organized, legislative, and congressional struggles, down to its formal organization, just one year ago, it is fit now to examine for a moment the essential nature and objects of the Institution which has thus been created. This I shall endeavor to do in the

blended light both of law and of reason — of statutory provisions and common sense; for we cannot presume that these, in any of the acts concerned, are contrary the one to the other.

The act of Congress of July 2, 1862, is the fundamental law, the *magna charta* from which the whole system of Universities not only derives its life, but in which its essential objects are defined, and the sphere of its legitimate operations clearly and comprehensively marked out. To the provisions of that act we must therefore look, primarily, to ascertain the province within which this University may legally and appropriately act. And since each State, in accepting the proffered endowment, did so with a full knowledge of all its accompanying conditions, and a solemn covenant with the National Government to stand to, abide by, and in good faith carry them out, it might be safely presumed that the legislation of each State on the subject would be in strict accord with the fundamental law. And this, upon examination and comparison, we find to be the fact. Indeed, the language of the two acts in relation to the fundamental purpose and scope of the University, is nearly identical. In section four of the act of July 2, 1862, Congress declares that "the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." While in section 7, of the act of February 28, 1867, our State Legislature declares that the Board of Trustees shall have power to do whatever "may be required to teach in the *most thorough manner* such branches of learning as are related to agriculture and the mechanic arts, and military tactics, without excluding other scientific and classical studies." The two sections are identical in meaning, upon these points, and nearly so in language — the only difference worthy of note being that our State law emphasizes the broad terms of the Congressional act, by the significant phrase — "in the *most thorough manner.*"

The purposes for which this University was established, the work which it must do and may do, are here stated and defined, by the supreme and authoritative laws of Congress and of Illinois, in a manner so plain that only the most hopeless ignorance or willful perversity can misconstrue or misunderstand them.

It will be seen that the law in respect to the instruction to be given in the University is two-fold, *mandatory* and *permissive* —

certain things must be taught, certain other things are *not excluded.* Respecting the latter the Trustees seem to have discretion; they may provide for them or not, as they see fit; in respect to the former, they have no choice or discretion whatever, they must provide for them, or violate their oaths and the laws.

The departments of instruction for which the Trustees are positively and peremptorily required to provide, and that "in the most thorough manner," are two:

1. "Such branches of learning as are related to agriculture and the mechanic arts," and

2. "Military tactics."

Instruction in these is a *sine qua non,* a condition precedent, default in which would work the forfeiture of the endowment.

Those branches of learning which are "not excluded," and for which the Trustees *may,* therefore, provide, at their discretion, are embraced in the comprehensive phrase, "other scientific and classical studies."

The boundaries of the present inquiry are thus sharply defined, both inclusively and exclusively. If the Trustees have arranged a course of study embracing "such branches of learning as are related to agriculture and the mechanic arts," and also, "military tactics," they have strictly complied with the law; and if in addition to these they have also provided for *some* "other scientific and classical studies," they have therein done precisely what the law, in so many words, allows and empowers them to do. Indeed, a much stronger interpretation of the clause, "*without excluding* other scientific and classical studies," is held by many eminent lawyers and jurists to be legitimate, if not even obligatory. In their view it would be by no means an unwarrantable construction to regard the italicized words in the above quotation as but another form of *requirement* — as coupling the duty of not excluding certain studies, with that of including certain other studies, and embracing both alike in the positive injunctions of the statute. But while this view is not without much force, and is strenuously maintained by many, I have preferred to adopt the permissive or optional theory, because it is the one about which there cannot be the semblance of cloud or doubt.

What then, are those "branches of learning which are related to agriculture and the mechanic arts," and which are necessary in order to teach the same "in the *most thorough manner?*"

The answer to this question involves answers to two others, viz: What *is* agriculture? What *are* the mechanic arts?

I shall not consume the precious time of this occasion by any attempt at mere definitions — to do so would be alike idle and unnecessary. Suffice it to say that no man can take the terms, elements and ideas commonly and necessarily embraced in any tolerably complete definitions of those words, and undertake to trace their logical and necessary connections and relations, without finding the courses of study prescribed by the Trustees in those departments, utterly exhausted long before even the beginning of the end is reached. In comparision with the heights and depths of research and investigation — the immensities and infinitudes of thought and study into the realms of Nature, comprehended in "those branches of learning" which are closely and inseparably related to "agriculture and the mechanic arts" — in comparison with these, the scheme of study and culture proposed in this University, comprehensive and excellent as it is, seems meagre indeed.

Agriculture and the mechanic arts! Whither do they *not* reach? Into what corner of the physical universe do they not lead us? What law of the terrestrial, solar, or sidereal worlds, do they not lay under contribution? What principle of life, or growth, or matter, or force, is not grasped by their ubiquitous hands? It is no rhetorical extravagance, but an undoubted and easily demonstrated truth, that there is naught of material life, or form, or being, force or motion, in the heavens above, the earth beneath, or the waters under the earth, into which, and through which, and around which, the laws and principles of those two sciences, in their myriad ramifications, relations and dependencies do not pour and penetrate with an all-pervading, divine universality, even as the atmospheric ocean envelops the globe.

The student of agricultural science encounters, at the very threshold of his investigations, problems among the nicest and most abstruse that can engage the scrutiny of the human intellect. He may indeed handle the implements of husbandry, and stir the clods of his ancestral acres, with as little sense of the tremendous forces and eternal harmonies that slumber beneath and about him, ready to spring into quick, responsive, co-operative action, re-enforcing and completing his labors — as the savage who stares at the rings of Saturn through a telescope has of the immutable laws and everlasting symphonies of the spheres.

But let him attempt to leave the beaten track — let him, leaving

his mere handicraft, undertake to interrogate Nature herself — let him endeavor to "make two blades of grass grow where but one grew before" — let him try to improve the quality or increase the productiveness of his fruits and vegetables and soils and animals — let him essay to produce new varieties of trees, plants, or flowers — or to revitalize exhausted soils; or to reclaim barren and worthless lands; or to discover the hidden manna upon which each plant delights to feed, with its peculiar and almost spiritual affinities for certain elements of atmosphere and soil — let him try to add one new flush of beauty to the queenly rose, or a daintier aroma to its fragrance — or an additional tint to the brilliant verbena — or another grace to the bending beauty of the elm, or the dark majesty of the pine: let him attempt to do any one of these or a thousand other similar things, and he finds himself at once confronted by the *jasper walls of science,* through not one of whose beautiful gates can he pass without the *countersign,* known only to the polished children of meditation and culture. He finds Nature a sealed book, her oracles dumb, and her shrines guarded by inexorable sentinels, who pitilessly reply to his entreaties: *"We know you not."*

There is no recourse for him but to begin with the *a*, *b*, *c*, of scientific principles, and laboriously work his way up to the sun-lit heights of Universal truths, as all have done who have gone before; or dismiss forever his new-born inspirations, and be content merely to hold the plow and swing the scythe till he dies. He can no more deal with the profound questionings that assail him on every side, without a knowledge of the subtle principles and exact scientific facts and truths upon which the problems of animal and vegetable life and growth and change depend, than he can make a book without an alphabet, or a house without tools and materials. And if he is really intent upon being a thinker, as well as a plowman, an explorer of truth as well as a sower of seed, a scientific agriculturist as well as a sturdy, practical farmer; it will not be long till he appreciates the utter absurdity of the popular outcry against the study of abstract principles and pure science. Here, as elsewhere, it will be found that there is nothing like a little wholesome experience to take the conceit out of a man — provided always that he has sense enough to know when that operation has actually been performed upon him — for incorrigible fools are not confined to the ranks of school-masters and theorists, as some affirm; there may be farmers, perchance, worthy to divide with them the honors!

Let the farmer who points to his own life-long and successful

husbandry without the benefit of books and theories and so-called useless abstractions, as a justification of his contempt for the thorough and systematic training of youth for agricultural pursuits — let such a one be called upon to conduct any original investigation, to analyze a soil; detect the presence of the insidious foes to vegetable life which lurk in earth, air, water and food; in a word, to advance the boundaries of agricultural science in any direction, and he will invoke the aid of his boasted skill in mere handicraft, as vainly as the false prophets of old, in their utter helplessness, cried aloud to Baal to help them. The divine fire will only descend at the summons of the true Elijahs of science.

It is no disgrace to be ignorant of abstruse knowledge, or of the subtle laws which pervade the universe of matter, from the atom to the continent — such knowledge can never, perhaps, be the inheritance of all. But to deride the study of abstract laws and principles, while boasting of the success which those very investigations have alone made possible, is the opposite of reasonable or honorable; and if to derision be added active and wanton hostility, what was before only stupidity and folly, becomes a crime against the interests of humanity.

I have spoken of the debt which successful husbandry, viewed only as a practical manual art, owes to scientific thinkers and pure philosophy. Go to your model farmer of this class, and inspect his estates, his methods of tillage, his selections and preparations of soils, the manures and fertilizers he uses, the rotation of crops that he practices, the breeds of animals he prefers, and how he rears and nurtures them — look at his machines and tools and implements of all sorts; his barns and other out-houses, his fences, gates, wagons and carts; his orchards, gardens, hot-beds and green-houses — and see what you will find. The latest and best improvements will characterize his outfit and equipments in every department. He will not have an old and defective machine or implement upon his place at any price, if a new and better one can be had. Every new and successful method and invention is eagerly sought for and applied. And yet, too often, after this unconscious homage to science, he will join in the chorus of disparagement of those very studies to the products of which he owes all of his pre-eminence; and of the men, it may be, who seek to place these priceless treasures in the hands of the people. Oh, men of Illinois, these things ought not so to be.

Thought rules the world, doubt it or deny it who may, and it will continue to do so to the end of time. Each and all of those marvelous machines, whose fingers of wood and iron spare those of flesh

and bone, are the offspring of science — born of the patient vigils of the student, begotton of those same despised abstractions which lead down to the solemn laboratories of nature, and upward to the high cabinet of heaven where the Supreme Architect of the Universe presides. Those amazing displays of productive energy, which have quadrupled the value of the estate, are but the grand victories of Agricultural Chemistry. Those lordly herds that sweep down to greet you, seeming the very incarnation of health and power and beauty, and as unlike their lean, ungainly progenitors as Darwin's hideous antetypes of man are to the imperial Caucasian, are the magnificent result of the applied principles of Animal Physiology. Those new and gorgeous varieties of flowers and shrubs, native and exotic, and those reduplicated specimens of choice fruits and vegetables, which have quintupled the market value of that orchard, garden and conservatory, are as certainly the radiant children of Botany, through Hybridization, as the day is the child of sunrise. Those peculiar soils of which our model farmer is the fortunate possessor, and of which he is so justly proud, are the gift of ages and epochs of strange and grand mutations, the thrilling story of which can only be told by Geology. He knows how to protect his favorite grape, or pear, or plum, from the invisible parasite that had for years doomed it to blight and death; or his wheat from the ravages of the terrible midge; or other fruits and grains from the deadly invasions of countless armies of atomic Goths and Huns — but gives no thanks to Entomology, to which, re-enforced by the microscope, he owes his deliverance and his wealth.

It might also be shown that he is equally a pensioner upon the munificent bounty of many other disregarded or despised, but life-giving, treasure-discovering, and wealth-bestowing sciences — such as Mineralogy, Meteorology, Natural History, etc. But the field is too wide, and enough for our purpose has already been said in this direction.

If we turn now for a moment to the other great department of instruction for which provision is required to be made in this University, viz: Those branches of learning related to the "Mechanic Arts," we shall find the views already presented to be not only sustained, but if possible, still more strikingly illustrated and confirmed.

If the student of agricultural science can not advance without a systematic and thorough training in the principles of pure philosophy and abstract science, it is vain for him who would be master of the mechanic arts to hope to do so.

And here it may be properly remarked that I am not now considering these scientific studies as instruments of *mental discipline,* at all — with that subject, upon which so much, wise and *otherwise,* has been said and written of late, I have now no concern. My present purpose is to show the absolute necessity of the mastery of principles in order to the highest success in the practical industries of life — that the material elements and resources with which we have to deal, can not be utilized without them; that a great many practical problems can not be solved at all without them, while a still larger number can not be advantageously or economically solved without them.

The student of Mechanics finds himself environed at once by those absolute and immutable laws of matter, of motion and rest, or momentum and force, by which the whole stupendous fabric of the material universe is sustained, directed and controlled. Go where he will he can not escape their presence, their inexorable conditions, or their resistless power. From the shape of the tiniest cog in the wheels of a watch, to the configuration of the earth and planets — from the whirl of a child's top, to the sweep of Neptune through his illimitable orbit — from the force that moves the index of the torsion balance, to that which upheaves oceans and continents — in all things and everywhere he finds himself in the grasp of God's everlasting and uncompromising code of dynamics and statics. And he finds, too, that the rock-built buttresses upon which all these laws rest down eternally, are derived from the science of *Mathematics* — without which he can do nothing; with which, in mechanical philosophy at least, he can do all things. Nor will a smattering of the rudiments, a little algebra and less geometry, avail, as many affect to believe — (for among the studies which it has become popular to decry as useless abstractions, nearly all of the pure mathematics, and many of the applied, are included) nothing short of the whole iron series, from arithmetic to the calculus, will or can unfetter the feet of progress in mechanical philosophy.

I know that many a young mechanic will repudiate all this as idle fancy, and for reasons similar to those given by the model farmer to whom allusion has been made — he has succeeded, he thinks, without this knowledge and culture. Yes, but I am not speaking of what he means by success. It is not merely or chiefly to teach the student to construct wheels, that this school is founded, but to enable him to know the *spirit that is within* the wheels — to put him in possession of the elements of universal success.

"The difficulty in positive rules prepared for uneducated men is, that they can never bend to circumstances; and the workmen go on in a fixed track in cases where they might have changed it without a variation of principle, but with the greatest economy of time and money.

"The calculation of the strength and stress of timber, though very simple in itself, is notwithstanding, an analytical problem, which one unacquainted with algebra could not solve. In the construction of groined arches, the principles of descriptive geometry are equally applicable and necessary. The catenary and elliptical curves, which are their best form, can not be understood without the higher geometry. The arch can not be built without the greatest extravagance in the use of materials, unless the precise form of every stone is known before it is cut from the rock. If the quantity of timber, stone, and other material wasted in building, from the want of a very little knowledge of mathematics, could be calculated, I have no doubt its price would educate all the young mechanics of the land. *Science is economical* — it repays the people a hundred-fold for what is expended in its cultivation. The surveyor must have at least some knowledge of trigonometry. All the section lines in these Northwestern States are based upon meridian-lines, and these were fixed by the nicest mathematical and astronomical calculations. In hydraulics we find the principles of mathematics equally necessary. All the calculations of the velocity, power and quantity of moving fluids depend upon these principles. How can a millwright be master of his business without understanding them? The very shapes of the cogs in his wheels are determined by them. In the construction of canals, railroads, bridges, and in all the operations of civil engineering, mathematics are the essential element."

Let any young mechanic who has fallen under the delusion that he can make his way to the highest success without a thorough acquaintance with mathematics, try the experiment. He begins with the common mechanical powers. He takes a *Lever,* and understands that a weight will move it; but the principle upon which different weights, at different distances move, he knows not, for this depends upon *ratios* and *proportions.* He passes to the *Inclined Plane,* but quits it in disgust when he finds its action depends upon the relations of *angles* and *triangles.* The *Screw* is still worse; and when he comes to the *Wheel* and *Axle,* he gives them up — they are all *mathematical.* He would investigate the laws of falling bodies and moving fluids, but instantly roots, lines, squares, angles and

curves float before him in the mazy dance of a disturbed intellect. The very first proposition is a mystery, and he soon discovers that mechanical philosophy is little better than mathematics itself.

But he still has his senses, and surely will not be indebted to diagrams and equations for their enjoyment. He gazes with admiration upon the phenomena of light; the rainbow upon the bosom of the clouds; the clouds themselves reflected from the surface of the waters. Whence this beautiful imagery? He soon finds that every hue in the rainbow is made by a different *angle of refraction;* that each ray from the mirror has its angle of incidence equal to its angle of reflection; and as he pursues the subject in the construction of lenses and telescopes, the whole family of triangles, ratios, proportions and conclusions arise to alarm his excited vision.

He turns to the Heavens, with its shining host, moving in solemn procession through the "Halls of the Sky," and would know the structure of this beautiful system, and the laws which regulate those distant lights. But *Astronomy* forever banishes him from her presence — she will have none near her to whom mathematics is not a familiar friend. What can *he* know of parallaxes, anomalies, and precessions, who has never studied the conic sections or the higher orders of analysis? She sends him to some wooden orrery, from which he may gather as much knowledge of the heavenly bodies as a child does of armies, from the gilded troopers of the toy shop.

But surely there *are* sciences which have better taste and less austerity of manners. He flies to *Chemistry,* and her gorgeous robes float loosely about him. For awhile he goes gloriously on, illuminated by the *red lights* and *blue lights* of crucibles and retorts. But soon he comes to compound bodies — to the composition of the elements around him, and finds them all in fixed relations — that gases and fluids will combine with each other and with solids only in a certain *ratio,* and that all possible compounds are formed by nature in *immutable proportions.* Then starts up the whole doctrine of chemical equivalents, and mathematics again stares him in the face.

Aghast, he flies to *Mineralogy;* stones he *may* pick up, jewels he may draw from the bosom of the earth, and be no longer alarmed at the stern visage of this terrible science; but even here he is not safe. He picks up a quartz, it contains a *crystal,* and that crystal takes the dreaded form of *Geometry.* Crystallization lures him on, but as he goes, cubes and hexagons, pyramids and dodecagons arise before him in splendid array. He would know more about them,

but must *wait* at the portal of the temple, till introduced by that honored of time and science, our friendly Euclid.

And now, where shall this student of nature, without the aid of mathematics, go for his knowledge or his enjoyments? To Natural History? The very birds cleave the air in the form of the *cycloid,* and mathematics prove it the best. Their feathers are formed upon calculated mechanical principles; the muscles of their frames are moved by them — the little bee has constructed his cell in the very geometrical figure and with the precise angles which mathematicians, after ages of investigation, have demonstrated to be that which contains the geatest economy of space and strength.

In the realms of chaos there may perhaps be found some spot visited by no figure of geometry, and no harmony of proportion; but nature, this beautiful creation of God, has no resting place for him who would shun mathematics. All its construction is mathematical. It has no elements mixed without regulated law; no broken chord to make a false note in the music of the spheres. (E. D. MANSFIELD, in "American Education," pp. 124-127.)

The Illinois Industrial University is established in no spirit of rivalry, much less of hostility or antagonism, to the other Colleges and Universities of the country; nor in any spirit of disparagement or even criticism of their objects, management, courses of study or practical results. Nor was it in any manner or sense the intention of Congress, in the munificent endowment of these Universities, or of the State Legislatures in accepting the grant with its conditions, to undervalue or discriminate against the old order of liberal culture.

The American College system has an illustrious history, and sits crowned to-day with imperishable lustre and beauty. Beginning at a period coeval with that of the Republic itself, it has done a work of blessedness and power the magnitude of which can never be recorded. It gave us the common school, and, with the common school it has, beyond a doubt, also given us the Industrial University itself. It needs no eulogium: there stand Harvard, and Yale, and Dartmouth, and Brown, and Amherst, and Bowdoin, and Princeton, and Union, and their compeers in the North and West, and there I trust they will stand forever. Peerless mothers of the nation's intellectual *Gracchi,* whose names and deeds and genius are interwoven with all that is noblest and best in our history and achievements, well may they exclaim, "See, *these* are our jewels!"

What, then, is the grand distinguishing feature, purpose, hope, of this University?

In my view it is to form a closer alliance between Labor and Learning; between Science and the Manual Arts; between Man and Nature; between the Human Soul and God as seen in and revealed through His works. It is to endeavor to so wed the intellect and heart of the students we educate, to the matchless attractions of rural and industrial life, that they will, with their whole soul, *prefer* and *choose* that life, and consecrate to it the resources of skill and culture and power that may here be gained. These I hold to be the aims and hopes of this University. And we hope to attain them, not by a less extensive and thorough course of instruction than is given in other Universities, but by a somewhat *different* course, and more especially by *emphasizing,* from the beginning to the end of it, those studies and sciences which look *away* from literary and professional life, and *towards* the pursuits of the agriculturist and the artisan — by holding the student to a closer *communion with Nature* in her forms of living grace and beauty; her protean changes; her sweet, profound and pure inspirations; and thus forming in his soul a purified *relish* for rural employments and pleasures, and a sincere longing for a life-long fellowship with them — by making as it were the very atmosphere of the University redolent of meadows and flowers, vocal with bird-notes and instinct with the love and spirit of the beautiful outer world — by demonstrating that the pursuits to which this Institution invites the young and ardent, are inferior in no element of dignity and honor to the so-called learned professions; requiring a scholarship no less varied and profound; equally fitting men for the most exalted positions in the State and Nation, while pointing to a life of purest enjoyments and sweetest tranquility — by proving, too, that in addition to these high advantages, the *rewards* of rural and mechanical industry, when vitalized by intelligence and re-enforced by the treasures of science, are equal to those of any other legitimate human vocation; and hence that none need turn from them in the hope of a speedier acquisition of wealth — and finally, by the sincere convictions and loving enthusiasm of the Regent and Instructors, inspiring and quickening all minds and hearts, and arousing that *"esprit du corps,"* which is the precursor of success in every department of human activities.

These are some of the modes by which we hope and believe that the great ends of this University will not fail of achievement. We all know the peculiar and subtle power of a fore-known and determined purpose, a well-defined and publicly announced generic aim, to create an intellectual and moral *atmosphere* that *itself* leads,

assists and educates in the desired direction. There are influences under which men unconsciously *gravitate* towards this or that pursuit, impelled thereto by a law of mental assimilation, whereby all things are made tributary to the dominant spirit of the place. At West Point *war* is the genius of the place, the objective point towards which every thing tends. Books, lectures, sciences, though in themselves the same there as elsewhere, all stand in some way connected, by this law of association, with military engineering, the movements of armies, or the conflicts of the battle-field. Because this is what West Point *is for.* No one can stay there long enough to catch the spirit of the place, without feeling that this is so.

In seminaries for clergymen, *theology* is the controlling theme, the centripetal force that reaches and modifies the whole life of the place, the currents of thought, the hopes and aspirations of the students.

Now a West Point Cadet is not *obliged* to assume, for life, the profession of arms, nor a student of theology to enter the sacred office; but all can see that each will be infinitely more *likely* to do so by reason of the peculiar purposes, affinities and surroundings of their respective places of culture; and that it is morally certain that *neither* will choose the profession of *the other.*

It is the powerful aid of this familiar principle, in connection with special courses of study, that is brought to bear and utilized by the establishment of separate Universities, the distinct and avowed object of which is to train young men for rural and mechanical pursuits. The exact sciences, and many other branches of learning taught here, are, of course, precisely the same, and taught in precisely the same manner, as at Yale, Dartmouth, or West Point — for all mathematics and pure philosophy belong to the realms of universal truth, which know no latitude or longitude, and which no institution, or class of institutions, or of men or professions, can exclusively appropriate, any more than light and air, fire and water, can be monopolized. But, under the influence of the spirit and tendencies here dominant, the culture and power *derived* from these studies will be *constantly deflected* from other pursuits, towards the grand aim of the University. The problems to which the principles of mathematics and other sciences will be most applied by our students, will be taken from the fields of investigation here most prominent — from the domain of agriculture and the mechanic arts — because these will here be the most familiar themes of thought and conversation — just as questions relating to the science of war are

uppermost at the Military Academy, or those pertaining to christian philosophy and faith, at Princeton or Andover. The same laws of association and affinity will operate here as elsewhere. And this is a matter of the highest importance, for the one great practical question in these Institutions will be, how to hold the young men to the farm and the workshops, *after* they are educated.

There is one proposition of fundamental importance in this whole matter of industrial education: If the pursuits of agriculture and the mechanic arts are ever to take, in the estimation of men, the commanding position to which they are justly entitled, those who are educated for them must be *as thoroughly and completely educated,* as those who are trained for other pursuits and professions. I consider this truth, and the recognition of it, as absolutely vital to success. If a farmer or an artisan is as *well educated* as a lawyer, a physician, or a senator — if he has, I mean, as much knowledge, as profound a mastery of scientific and philosophical principles, as much self-knowledge and self-dependence, as much varied attainment, as much *brain power, thought power,* and *heart power,* he will be the *peer* of the latter, in influence and honor and usefulness and force, anywhere and every where and always — but if not, he will be inferior to the other in power and influence, and no device, or pretense, or declamation, or protest, or sophistry can make it otherwise. The difference will exist precisely as long as the causes that produced it; it is simply the difference between weakness and strength. I have nothing whatever to do here with the means and instrumentalities of education, but only with the *fact,* the *product,* the *finished work* of culture. And I affirm again, that the cause, and the only cause, of the immensely superior power heretofore wielded in the affairs of men, by the professional classes over the industrial classes is, that the one have thus far been better educated than the other. And now, if these Universities of the people expect successfully to compete, in their appropriate spheres, with those which are already hoary with age and venerable with honors; which are completely equipped and manned, and impregnably intrenched among the very foundation stones of our whole educational and social system, and interwoven with all of our ideas of intellectual culture and progress as a nation — if this is expected, (and to expect less would be to invite contempt and defeat, at the outset), the one palpable, essential and indispensable condition is, that the education for which they provide must be *equal* in *all essential points,* in extent, in comprehensiveness, in thoroughness, and in

inspiration and power, with that afforded by the old colleges and universities of the country. Our courses of study must be as broad; our apparatus, libraries, cabinets, and other auxiliaries and appliances, must be as ample and as good; our professors, lecturers, and teachers, must be as able and earnest, as learned, adapted, and devoted, as theirs.

With these conditions fulfilled, and super-added to the matchless value and beauty of the pursuits whose ranks we seek to fill, and with the benisons of waiting millions upon our efforts, and praying for our success, we shall not fail. But if we aim at anything less than this, failure is already inscribed upon these walls. In the language of another, such Industrial Universities as we have had, and as some people still talk about, mere elementary schools, where boys are sent to learn to work instead of to learn *to think,* "stand before the public mind, as contrasted with the compactly organized, and ubiquitous power and presence of older Institutions, much like an unarmed mob of a few hundred men, in presence of armed legions of veterans — or like a wheelbarrow along-side of a locomotive — or a scow along-side of a well-armed navy — a thing not to be resisted, or even competed with, but simply to be laughed at."

There are some errors and fallacies and lies about this matter of education, which have befooled and cursed mankind long enough; it is high time for them to die and be buried. One of them is the absurd and "contemptible idea that the highest degree of education cannot be employed in one calling as well as another" — that a few men, or classes of men, have a divine right to monopolize and devour all but the crumbs that fall from the groaning tables of science. To sweep such abominable falsehoods from the precincts of truth, and from the minds of the people, "rhetoric may well become a whirlwind, and logic fire."

If one proposing to himself the life of a farmer or a mechanic, or any other industrial pursuit, *wants* to study languages, ancient or modern, or metaphysics, or belles-lettres, or *anything else* out of the direct line of preparation for his chosen employment, it is his right to do so, and the province of no man to say he should not, or to sneer at the idea that *he* can make use of such things. If he does *not* want them, he need not have them — no man, or institution, or system, or corporation on earth has the right to force them upon him. All I claim is, that no institution can, with a decent regard to truth or sense, be called a *University* which does not provide something more than merely special, or professional, courses; which does

not place the amenities of literature, the treasures of intellectual and ethical philosophy, and the world's wealth of genius, art, and taste, within the reach of all *who choose to have them.* And I utterly deny that the industrial classes may of right be excluded from *any* department of learning to which any other class has access. "*Every* art and *every* science may conspire to increase the enjoyments and profits, and to confer dignity, grace, and honor upon the tiller of the soil. It is the *art of arts,* the *science of sciences,* where physical and intellectual capacity, judgment, taste and learning, may aid to produce the most triumphant success. I can conceive of no other life that, followed in its comprehensive spirit and grasp, calls into action more varied powers and acquisitions, or inspires more of the faculties and energies and ingenuities of man."

May the God of light and knowledge and love smile upon the transactions of this day — may He accept and bless the offering we here lay upon the altar of truth and liberty. We have waited long for this Institution and for this hour — both have come at last. With beaming garments and glorious prophecies of good to all the people of this Commonwealth, the Illinois Industrial University, escorted and up-borne, I trust, by the heartiest benedictions of all, to-day moves grandly to the front, and assumes her position at the head of the imperial line of forces by which the State would draw the whole people up to light and knowledge. Well may every mind be impressed as we stand at the head-springs of this new fountain, and pray that its streams may be *pure, copious* and *perennial.*

My memory as an Illinoisan ante-dates the free school, the railroad, the canal, the city, all that constitutes the glory and hope of the Illinois of to-day. First pressing the soil of the State when Chicago numbered less than one hundred souls; when all this region, for leagues in every direction, was a silent wilderness, and St. Louis, then an inconsiderable village, was our nearest market and only source of supplies; having devoted my whole life to educational work, and organized, in the midst of opposition and doubt, the first free school ever established in the State — it would be strange if *I* could stand here this day, without emotion — a day so full of crowding memories of the past, of thankful joy for the present, and thrilling visions of the future.

Thank God, monopolies of learning, by privileged classes, are among the discrowned shadows of the past. A new element is henceforth to bear sway in the destinies of these States and of the nation. To the dust must go, and will go, whatever schemes, devices or sys-

tems, refuse to affiliate with or set themselves in opposition to, the Lord's redeemed and annointed — the *People*. This is the sublime spirit of the age, and its victories will be brighter and grander, as the generations come and go.

I believe this University is founded in, and pervaded by, this spirit, and that it therefore has a great work to do — a work full of beauty and glory, of beneficence and power. But it is not for a sect, or class, or clan. The people have borne the proscription through historic ages, and an end has come. Henceforth the inscription upon the temples of highest learning, as well as of the common school, is to be: *"Whosoever will,* let him come." Let this University catch here, and feel forever, the inspiration of this ennobling conception of the surely coming American democracy — let it join with the ten thousand public schools of the State, and with the ten times ten thousand public schools of the Union, in voicing down to coming generations the incarnate truth of the age and of God, that culture, as well as liberty, is the everlasting heritage of the race, and that whoso would restrict to the few what belongs to all, is a traitor to the people. Glory be to God in the highest, and on earth, peace, good will to men.

Professor Jonathan Baldwin Turner was a Yale graduate in the classics. In 1833 he emigrated to Illinois to become Professor of Rhetoric and Belles Lettres at Illinois College in Jacksonville. He came to admire the pioneer spirit and practical nature of the rural men about him, and was a vigorous advocate of free public education for their children.

By the early 1840's, Professor Turner was particularly concerned about the lack of a system of higher education which would equip men to work with their hands, almost all higher education at that time being directed toward professional occupations. He first introduced his plan for such a system of educational institutions in this speech to a teachers institute at Griggsville, Illinois, on May 13, 1850.

The speech immediately attracted the attention of the Buel Institute, an association of central Illinois farmers. His speech before the Buel Institute at Granville, November 18, 1851, based on this speech, received nation-wide publicity through various farm journals, and led to the founding of the Industrial League of Illinois to agitate for the creation of a system of industrial universities.

"A STATE UNIVERSITY FOR THE INDUSTRIAL CLASSES," BY JONATHAN BALDWIN TURNER*

"Citizens of Griggsville: Some here will recollect that a few years ago I delivered an address to you in this place, the first that I ever did deliver on industrial education. For several years the advocates of that scheme were branded in the public print with all sorts of opprobrious epithets by the long-eared guardians of our faith, our morals, and our civilization. We were denounced as ruthless and visionary agitators and outlaws. The bill for richly and appropriately endowing such institutions, involving the expenditure of millions of money, is now favorably and hopefully before Congress, and great sovereign States are disputing, through the press, about the honor of having originated the scheme. It is my own firm belief that *you* are the first people in the Union, and the first in the civilized world, that ever gave to that scheme a warm, earnest, and decided support. Certainly, the reception you gave it led me first to regard it as practically hopeful as well as truly needful."

This speech, which gave the first impetus to the movement that established the great State land-grant universities of this country, was as follows:

---

* According to Turner's biographer, this speech was originally delivered from notes by Professor Turner in Griggsville, Illinois, on May 13, 1850. The present text is taken from Professor Turner's later reconstruction of the speech at the dedication of a new high school in Griggsville. From Mary Turner Carriel, *The Life of Jonathan Baldwin Turner,* 1911. The outline for the speech was later expanded into a lengthy pamphlet which had wide circulation in the state: J. B. Turner, *Industrial Universities for the People,* published by the Industrial League of Illinois, 1853.

"All civilized society is, necessarily, divided into two distinct co-operative, not antagonistic, classes: a small class, whose proper business it is to teach the true principles of religion, law, medicine, science, art, and literature; and a much larger class, who are engaged in some form of labor in agriculture, commerce, and the arts. For the sake of convenience, we will designate the former the *professional,* and the latter the *industrial* class; not implying that each may not be equally industrious, the one in their intellectual, the other in their industrial pursuits. Probably in no case would society ever need more than five men out of one hundred in the professional class, leaving ninety-five in every hundred in the industrial; and, so long as so many of our ordinary teachers and public men are taken from the industrial class, as there are at present, and probably will be for generations to come, we do not really need over one professional man for every hundred, leaving ninety-nine in the industrial class.

"The vast difference, in the practical means, of an *appropriate liberal education,* suited to their wants and their destiny, which these two classes enjoy, and ever have enjoyed the world over, must have arrested the attention of every thinking man. True, the same general abstract science exists in the world for both classes alike; but the means of bringing this abstract truth into effectual contact with the daily business and pursuits of the one class does exist, while in the other case it does not exist, and never can till it is new created.

"The one class have schools, seminaries, colleges, universities, apparatus, professors, and multitudinous appliances for educating and training them, for months and years, for the peculiar profession which is to be the business of their life; and they have already created, each class for its own use, a vast and voluminous literature that would well-nigh sink a whole navy of ships.

"But where are the universities, the apparatus, the professors, and the literature specifically adapted to any one of the industrial classes? Echo answers, Where? In other words, society has become, long since, wise enough to know that its *teachers* need to be educated; but it has not yet become wise enough to know that its *workers* need education just as much. In these remarks I have not forgotten that our common schools are equally adapted and applied to all classes; but reading, writing, etc., are, properly, no more education than gathering seed is agriculture, or cutting ship-timber navigation. They are the mere rudiments, as they are called, or means — the mere instrument of an after education; and, if not so used, they are

and can be of little more use to the possessor than an ax in the garret or a ship rotting upon the stocks.

"Nor am I unmindful of the efforts of the monarchs and aristocrats of the Old World in founding schools for the 'fifteenth cousins' of their order, in hopes of training them into a sort of *genteel farmers,* or rather *overseers* of farmers; nor yet of the several 'back fires' (as the *Prairie Farmer* significantly designates them) set by some of our older professional institutions to keep the rising and blazing thought of the industrial masses from burning too furiously. They have hauled a canoe alongside of their huge professional steamships and invited all the farmers and mechanics of the State to jump on board and sail with them; but the difficulty is, they will not embark. We thank them for even this courtesy. It shows that their hearts are yearning toward us, notwithstanding the ludicrous awkwardness of their first endeavors to save us.

"An answer to two simple questions will perhaps sufficiently indicate our ideas of the whole subject, though that answer on the present occasion must necessarily be confined to a bare outline. The first question, then, is this:

"I. WHAT DO THE INDUSTRIAL CLASSES WANT?

"II. HOW CAN THAT WANT BE SUPPLIED?

"The first question may be answered in few words. They want, and they ought to have, the same facilities for understanding the true philosophy, the science and the art of their several pursuits (their life business), and of efficiently applying existing knowledge thereto, and widening its domain, which the professional classes have long enjoyed in their pursuits. Their first labor is, therefore, to supply a vacuum from fountains already full, and bring the living waters of knowledge within their own reach. Their second is, to help fill the fountains with still greater supplies. They desire to depress no institution, no class whatever; they only wish to elevate themselves and their pursuits to a position in society to which all men acknowledge they are justly entitled, and to which they also desire to see them aspire.

"II. HOW, THEN, CAN THAT WANT BE SUPPLIED?

"In answering this question, I shall endeavor to present, with all possible frankness and clearness, the outline of impressions and convictions that have been gradually deepening in my own mind, for the past twenty years, and let them pass for whatever the true friends of the cause may think them worth.

"And I answer, first, negatively, that this want cannot be supplied by any of the existing institutions for the professional classes, nor by any incidental appendage attached to them as a mere secondary department.

"These institutions were designed and adapted to meet the wants of the professional classes, as such — especially the clerical order; and they are no more suited to the real wants of the industrial class than the institution we propose for them would be suited to the professional class.

"Their whole spirit and aim is, or should be, literary and intellectual — not practical and industrial; to make men of books and ready speech — not men of work, and industrial, silent thought. But the very best classical scholars are often the very worst practical reasoners; and that they should be made workers is contrary to the nature of things, the fixed laws of God. The whole interest, business, and destiny for life of the two classes run in opposite lines; and that the same course of study should be equally well adapted to both is as utterly impossible as that the same pursuits and habits should equally concern and benefit both classes.

"The industrial classes know and feel this, and therefore they do not, and will not, patronize these institutions, only so far forth as they desire to make professional men for public use. As a general fact, their own multitudes do, and *will forever,* stand aloof from them; and, while they desire to foster and cherish them for their own appropriate uses, they know that they do not, and can not, fill the sphere of their own urgent industrial wants. They need a similar system of *liberal education* for their own class and adapted to their own pursuits; to create for them an *industrial literature,* adapted to their professional wants; to raise up for them *teachers* and *lecturers* for subordinate institutes; and to elevate them, their pursuits, and their posterity to that relative position in human society for which God designed them.

"The whole history of education, both in Protestant and Catholic countries, shows that we must begin with the higher institutions, or we can never succeed with the lower; for the plain reason that neither knowledge nor water will run uphill. No people ever had, or ever can have, any system of common schools and lower seminaries worth anything until they have first founded their higher institutions and fountains of knowledge from which they could draw supplies of teachers, etc., for the lower. We would begin, therefore, where all experience and common sense show that we must begin, if we would effect anything worthy of an effort.

"In this view of the case, the first thing wanted in this process is a National Institute of Science, to operate as the great central luminary of the national mind, from which all minor institutions should derive light and heat, and toward which they should also reflect back their own. This primary want is already, I trust, supplied by the Smithsonian Institute, endowed by James Smithson, and incorporated by the United States Congress at Washington, D. C.

"To cooperate with this noble institute, and enable the industrial classes to realize its benefits in practical life, we need a University for the Industrial Classes in each of the States, with their consequent subordinate institutes, lyceums, and high schools in each of the counties and towns.

"The objects of these institutes should be to apply existing knowledge directly and efficiently to all practical pursuits and professions in life, and to extend the boundaries of our present knowledge in all possible practical directions.

"Plan for the State University. — There should be connected with such an institution, in this State, a sufficient quantity of land, of variable soil and aspect, for all its needful annual experiments and processes in the great interests of agriculture and horticulture.

"Buildings of appropriate size and construction for all its ordinary and special uses; a complete philosophical, chemical, anatomical, and industrial apparatus; a general cabinet, embracing everything that relates to, illustrates, or facilitates any one of the industrial arts, especially all sorts of animals, birds, reptiles, insects, trees, shrubs, and plants found in this State and adjacent States.

"Instruction should be constantly given in the anatomy and physiology, the nature, instincts, and habits of all animals, insects, trees, and plants; their laws of propagation, primogeniture, growth, and decay, disease and health, life and death; on the nature, composition, adaptation, and regeneration of soils; on the nature, strength, durability, preservation, perfection, composition, cost, use, and manufacture of all materials of art and trade; on political, financial, domestic, and manual economy (or the saving of labor of the hand) to all industrial processes; on the true principles of national, constitutional, and civil law, and the true theory and art of governing and controlling or directing the labor of men in the State, the family, shop, and farm; on the laws of vicinage, or the laws of courtesy and comity between neighbors, as such, and on the principles of health and disease in the human subject, so far at least as is needful for household safety; on the laws of trade and commerce, ethical, con-

ventional, and practical; on bookkeeping and accounts; and, in short, in all those studies and sciences, of whatever sort, which tend to throw light upon any art or employment which any student may desire to master, or upon any duty he may be called to perform, or which may tend to secure his moral, civil, social and industrial perfection as a man.

"No species of knowledge should be excluded, practical or theoretical; unless, indeed, those specimens of 'organized ignorance' found in the creeds of party politicians and sectarian ecclesiastics should be mistaken by some for a species of knowledge.

"Whether a distinct classical department should be added, or not, would depend on expediency. It might be deemed best to leave that department to existing colleges as their more appropriate work, and to form some practical and economical connection with them for that purpose; or it might be best to attach a classical department in due time to the institution itself.

"To faciliate the increase and practical application and diffusion of knowledge, the professors should conduct, each in his own department, a continued series of *annual experiments.*

"For example, let twenty or more acres of each variety of grain (each acre accurately measured) be annually sown, with some practical variation on each acre, as regards the quality and preparation of the soil, the kind and quantity of seed, the time and mode of sowing or planting, the time and modes and processes of cultivation and harvesting, and an accurate account kept of all costs, labor, etc., and of the final results. Let analogous experiments be tried on all the varied products of the farm, the fruit-yard, the nursery, and the garden; on all modes of crossing, rearing, and fattening domestic animals, under various degrees of warmth and light, with and without shelter; on green, dry, raw, ground, and cooked food, cold and warm; on the nature, causes, and cure of their various diseases, both of those on the premises and of those brought in from abroad; and advice given, and annual reports made on those and all similar topics. Let the professors of physiology and entomology be ever abroad at the proper seasons, with the needful apparatus for seeing all things visible and invisible, and scrutinizing the latent causes of all those blights, blasts, rots, rusts, and mildews which so often destroy the choicest products of industry, and thereby impair the health, wealth, and comfort of millions of our fellow men. Let the professor of chemistry carefully analyze the various soils and products of the State, retain specimens, given instruction, and report on their various qualities, adaptions, and deficiencies.

"Let similar experiments be made in all other interests of agriculture and mechanic or chemical art, mining, merchandise, and transportation by water and by land, and daily practical and experimental instruction given to each student in attendance in his own chosen sphere of research or labor in life. Especially let the comparative merits of all labor-saving tools, instruments, machines, engines, and processes be thoroughly and practically tested and explained, so that their benefits might be at once enjoyed, or the expense of their cost avoided by the unskilful and unwary.

"It is believed by many intelligent men that from one third to one half the annual products of this State are annually lost from ignorance on the above topics. And it can scarcely be doubted that in a few years the entire cost of the whole institution would be annually saved to the State in the above interests alone, aside from all its other benefits, intellectual, moral, social, and pecuniary.

"The apparatus required for such a work is obvious. There should be grounds devoted to a botanical and common garden, to orchards and fruit-yards, to appropriate lawns and promenades, in which the beautiful art of landscape-gardening could be appropriately applied and illustrated, to all varieties of pasture, meadow, and tillage needful for the successful prosecution of the needful annual experiments. And on these grounds should be collected and exhibited a sample of every variety of domestic animal, and of every tree, plant, and vegetable that can minister to the health, wealth, or taste and comfort of the people of the State; their nature, habits, merits, production, improvement, culture, diseases, and accidents thoroughly scrutinized, tested, and made known to the students and to the people of the State.

"There should also be erected a sufficient number of buildings and out-buildings for all the purposes above indicated, and a *repository,* in which all the ordinary tools and implements of the institution should be kept, and models of all other useful implements and machines from time to time collected, and tested as they are proffered to public use. At first it would be for the interest of inventors and vendors to make such deposits. But, should similar institutions be adopted in other States, the general government ought to create in each State a general patent office, attached to the universities, similar to the existing deposits at Washington, thus rendering this department of mechanical art and skill more accessible to the great mass of the people of the Union.

"I should have said, also, that a suitable industrial library should

be at once procured, did not all the world know such a thing to be impossible, and that one of the first and most important duties of the professors of such institutions will be to begin to create, at this late hour, a proper practical literature and series of textbooks for the industrial classes.

"As regards the *professors,* they should, of course, not only be men of the most eminent, practical ability in their several departments, but their connection with the institution should be rendered so fixed and stable as to enable them to carry through such designs as they may form, or all the peculiar benefits of the system would be lost.

"Instruction, by lectures and otherwise, should be given mostly in the colder months of the year, leaving the professors to prosecute their investigations, and the students their necessary labor, either at home or on the premises, during the warmer months.

"The institution should be open to all classes of students above a fixed age, and for any length of time, whether three months or seven years, and each taught in those particular branches of art which he wishes to pursue, and to any extent, more or less. And all should pay their tuition and board bills, in whole or in part, either in money or necessary work on the premises — regard being had to the ability of each.

"Among those who labor, medals and testimonials of merit should be given to those who perform their tasks with most promptitude, energy, care, and skill; and all who prove indolent or ungovernable excluded at first from all part in labor, and speedily, if not thoroughly reformed, from the institution itself; and here, again, let the law of nature, instead of the law of rakes and dandies, be regarded, and the true impression ever made on the mind of all around, that *work alone is honorable,* and indolence certain disgrace, if not ruin.

"At some convenient season of the year, the commencement, or *annual fair,* of the university should be holden through a succession of days. On this occasion the doors of the institution, with all its treasures of art and resources of knowledge, should be thrown open to all classes, and as many other objects of agricultural or mechanical skill gathered from the whole State as possible, and presented by the people for inspection and premium on the best of each kind; judgment being rendered, in all cases, by a committee wholly disconnected with the institution. On this occasion all the professors, and as many of the pupils as are sufficiently advanced, should be constantly engaged in lecturing and explaining the divers objects and interests of their departments. In short, this occasion should be made the great annual *gala day* of the institution, and of all the

industrial classes, and all other classes in the State, for the exhibition of their products and their skill, and for the vigorous and powerful diffusion of practical knowledge in their ranks, and a more intense enthusiasm in its extension and pursuit.

"As matters now are, the world has never adopted any efficient means for the application and diffusion of even the practical knowledge which does exist. True, we have fairly got the primer, the spelling-book, and the newspaper abroad in the world, and we think that we have done wonders; and so, comparatively, we have. But if this is a wonder, there are still not only wonders, but, to most minds, inconceivable miracles, from new and unknown worlds of light, soon to break forth upon the industrial mind of the world.

"Here, then, is a general, though very incomplete, outline of what such an institution should endeavor to become. Let the reader contemplate it as it will appear when generations have perfected it in all its magnificence and glory; in its means of good to man, to *all men* of *all classes;* in its power to evolve and diffuse practical knowledge and skill, true taste, love of industry, and sound morality — not only through its apparatus, experiments, instructions, and annual lectures and reports, but through its thousands of graduates, in every pursuit in life, teaching and lecturing in all our towns and villages; and then let him seriously ask himself, is not such an object worthy of at least an effort, and worthy of a State which God himself, in the very act of creation, designed to be the first agricultural and commercial State on the face of the globe?

"Who should set the world so glorious an example of educating their sons worthily of their heritage, their duty, and their destiny, if not the people of such a State? In our country we have no aristocracy, with the inalienable wealth of ages and constant leisure and means to perform all manner of useful experiments for their own amusement; but we must create our nobility for this purpose, as we elect our rulers, from our own ranks, to aid and serve, not to domineer over and control us. And, this done, we will not only beat England and beat the world in yachts and locks and reapers, but in all else that contributes to the well being and true glory of man.

"I maintain that if every farmer's and mechanic's son in this State could now visit such an institution but for a single day in the year, it would do him more good in arousing and directing the dormant energies of mind than all the cost incurred, and far more good than many a six months of professed study of things he will never need and never want to know.

"As things now are, our best farmers and mechanics, by their own native force of mind, by the slow process of individual experience, come to know, at forty, what they might have been taught in six months at twenty; while a still greater number of the less fortunate or less gifted, stumble on through life almost as ignorant of every true principle of their art as when they began. A man of real skill is amazed at the slovenly ignorance and waste he everywhere discovers on all parts of their premises, and still more to hear them boast of their ignorance of all 'book farming,' and maintain that 'their children can do as well as they have done'; and it certainly would be a great pity if they could not.

"The patrons of our university would be found in the former, not in the latter, class. The man whose highest conception of earthly bliss is a log hut in an uninclosed yard, where pigs of two species are allowed equal rights, unless the four-legged tribe chance to get the upper hand, will be found no patron of industrial universities. Why should he be? He knows it all already.

"There is another class of untaught farmers who devote all their capital and hired labor to the culture, on a large scale, of some single product, which always pays well when so produced on a fresh soil, even in the most unskilful hands. Now, such men often increase rapidly in wealth, but it is not by their skill in agriculture, for they have none — their skill consists in the management of capital and labor; and deprive them of these, and confine them to the varied culture of a small farm, and they would starve in five years, where a true farmer would amass a small fortune. This class are, however, generally the fast friends of education, though many a looker-on will cite them as instances of the uselessness of acquired skill in farming, whereas they should cite them only as a sample of the resistless power of capital even in comparatively unskilful hands.

"Such institutions are the only possible remedy for a caste education, legislation, and literature. If any one class provide for their own liberal education in the State, as they should do, while another class neglect this, it is as inevitable as the law of gravitation that they should form a ruling caste or class by themselves, and wield their power more or less for their own exclusive interests, and the interests of their friends.

"If the industrial were the only educated class in the State, the caste power in their hands would be as much stronger than it now is as their numbers are greater. But now industrial education has

been wholly neglected, and the various industrial classes left still ignorant of matters of the greatest moment pertaining to their vital interests, while the professions have been studied till trifles and fooleries have been magnified into matters of immense importance, and tornadoes of windy words and barrels of innocent ink shed over them in vain.

"This, too, is the inevitable result of trying to crowd all liberal practical education into one narrow sphere of human life. It crowds their ranks with men totally unfit by nature for professional service. Many of these, under a more congenial culture, might have become, instead of the starving scavengers of a learned profession, the honored members of an industrial one. Their love of knowledge was indeed amiable and highly commendable; but the necessity which drove them from their natural sphere in life, in order to obtain it, is truly deplorable.

"But such a system of general education as we now propose would (in ways too numerous now to mention) tend to increase the respectability, power, numbers and resources of the true professional class.

"Nor are the advantages of the mental and moral discipline of the student to be overlooked; indeed, I should have set them down as most important of all, had I not been distinctly aware that such an opinion is a most deadly heresy; and I tremble at the thought of being arraigned before the tribunal of all the monks and ecclesiastics of the Old World, and no small number of their progeny in the New.

"It is deemed highly important that all in the professional classes should become writers and talkers; hence, they are so incessantly drilled in all the forms of language, dead and living, though it has become quite doubtful whether, even in their case, such a course is most beneficial, except in the single case of the professors of literature and theology, with whom these languages form the foundation of their professions and the indispensable instruments of their future art in life.

"No inconsiderable share, however, of the mental discipline that is attributed to this peculiar course of study, arises from daily intercourse, for years, with minds of the first order in their teachers and comrades, and would be produced under any other course, if the parties had remained harmoniously together. On the other hand, a classical teacher who has no original, spontaneous power of thought, and knows nothing but Latin and Greek, however perfectly, is

enough to stultify a whole generation of boys and make them all pedantic fools like himself. The idea of infusing mind, or creating or even materially increasing it, by the daily inculcation of unintelligible words — all this awful wringing to get blood out of a turnip — will, at any rate, never succeed except in the hands of the eminently wise and prudent, who have had long experience in the process; the plain, blunt sense of the unsophisticated will never realize cost in the operation. There are, moreover, probably, few men who do not already talk more, in proportion to what they really know, than they ought to. This chronic diarrhoea of exhortation, which the social atmosphere of the age tends to engender, tends far less to public health than many suppose. The history of the Quakers shows that more sound sense, a purer morality, and a more elevated practical piety can exist, and does exist, entirely without it, than is commonly found with it.

"Indeed, I think the exclusive and extravagant claims set up for ancient lore, as a means of disciplining the reasoning powers, simply ridiculous when examined in the light of those ancient worthies who produced that literature, or the modern ones who have been most devoted to its pursuit in this country and in Europe. If it produces infallible practical reasoners, we have a great many thousand infallible antagonistic truths, and ten thousand conflicting paths of right, interest, duty and salvation. If any man will just be at the trouble to open his eyes and his ears, he can perceive at a glance how much this evasive discipline really does, and has done, for the reasoning faculty of man, and how much for the power of sophistical cant and sterotyped nonsense; so that if obvious facts, instead of verbose declamation, are to have any weight in the case, I am willing to join issue with the opposers of the proposed scheme, even on the bare ground of its superior adaptation to develop the mental power of its pupils.

"The most natural and effectual mental discipline possible for any man arises from setting him to earnest and constant thought about things he daily does, sees, and handles, and all their connected relations and interests. The final object to be attained, with the industrial class, is to make them *thinking laborers;* while of the professional class we should desire to make *laborious thinkers;* the production of goods to feed and adorn the body being the final end of one class of pursuits, and the production of thought to do the same for the mind the end of the other. But neither mind nor body

can feed on the offals of preceding generations. And this constantly recurring necessity of reproduction leaves an equally honorable, though somewhat different, career of labor and duty open to both, and, it is readily admitted, should and must vary their modes of education and preparation accordingly.

"It may do for the man of books to plunge at once amid the catacombs of buried nations and languages, to soar away to Greece and Rome, or Nova Zembla, Kamchatka, and the fixed stars, before he knows how to plant his own beans, or harness his own horse, or can tell whether the functions of his own body are performed by a heart, stomach, and lungs, or with a gizzard or gills. But for the man of work thus to bolt away at once from himself and all his pursuits in after life contravenes the plainest principles of nature and common sense. No wonder such educators have ever deemed the liberal culture of the industrial classes an impossibility; for they have never tried nor even conceived of any other way of educating them except that by which they are rendered totally unfit for their several callings in after life. How absurd would it seem to set a clergyman to plowing and studying the depredations of blights, insects, the growing of crops, etc., in order to give him habits of thought and mental discipline for the pulpit; yet this is not half as ridiculous, in reality, as the reverse absurdity of attempting to educate the man of work in unknown tongues, abstract problems and theories, and metaphysical figments and quibbles.

"Some, doubtless, will regard the themes of such a course of education as too sensuous and gross to lie at the basis of a pure and elevated mental culture. But the themes themselves cover all possible knowledge and all modes and phases of science, abstract, mixed, and practical. In short, the field embraces all that God has made, and all that human art has done; and if the created universe of God and the highest art of man are too gross for our refined uses, it is a pity the 'morning stars and the sons of God' did not find it out as soon as the blunder was made. But, in my opinion, these topics are of quite as much consequence to the well being of man and the healthful development of mind as the concoction of the final nostrum in medicine, or the ultimate figment in theology and law, conjectures about the galaxy, or the Greek accent; unless, indeed, the pedantic professional trifles of one man in a thousand are of more consequence than the daily vital interests of all the rest of mankind.

"But can such an institution be created and endowed? Doubtless it can be done, and done at once, if the industrial classes so decide. The fund given to this State by the general government, expressly for this purpose, is amply sufficient, without a dollar from any other source; and it is a mean if not an illegal perversion of this fund to use it for any other purpose. It was given to the people, the whole people, of this State — not for a class, a party, or sect, or conglomeration of sects; not for common schools, or family schools, or classical schools; but for 'an university,' or seminary of a high order, in which should, of course, be taught all those things which every class of the citizens most desire to learn — their own duty and business for life. This, and this alone, is an university in the true, original sense of the term. And if an institution which teaches all that is needful only for the three professions of law, divinity, and medicine is, therefore, an university, surely one which teaches all that is needful for all the varied professions of human life is far more deserving of the name and the endowments of an university.

"But in whose hands shall the guardianship and oversight of this fund be placed, in order to make it of any real use for such a purpose? I answer, without hesitation and without fear, that this whole interest should, from the first, be placed directly in the hands of the people, and the whole people, without any mediators or advisers, legislative or ecclesiastical, save only their own appointed agents, and their own jurors and courts of justice, to which, of course, all alike must submit. It was given to the people, and is the property of the people, not of legislators, parties, or sects; and they ought to have the whole control of it, so far as is possible consistently with a due security of the funds and needful stability of plans of action and instruction. This control I believe they will be found abundantly able to exercise; and more than this no well-informed man would desire.

"The reasons for placing it at once and forever beyond all legislative and ecclesiastical control are obvious to all. For if under the former it will continually exist as the mere tool of the dominant party, and the object of jealous fear and hatred of their opponents; or else it will become the mere football of all parties, to be kicked hither and thither as the party interests and passion of the hour may dictate. We well know how many millions of money have been worse than thrown away by placing professed seminaries of learning under the influence of party passion, through legislative control. And it is surely a matter for devout gratitude that our legislators

have had wisdom enough to see and feel this difficulty, and that they have been led, from various causes, to hold this 'Seminary Fund' free from all commitment to the present hour, when the people begin to be convinced that they need it, and can safely control it; and no legislator but an aristocrat or a demagogue would desire to see it in other hands.

"The same difficulty occurs as regards sects. Let the institution be managed ever so well by any one party or sect, it is still certain their opponents will stand aloof from it, if they do not oppose and malign it for that very reason. Hence, all will see at once that the greatest possible care should be taken to free it from not only the reality but even from the *suspicion* of any such influence. Should the party in power, when the charter may be granted, appoint a majority of the board of trustees from the parties in the minority, it would show a proper spirit, and be, in all coming time, an example of true magnanimity, which their opponents could not fail to respect and to imitate, and which the people at large would highly approve. A victorious hero can afford to be generous as well as brave — none worthy of a triumph can afford to be otherwise. In all future appointments, also, the candidates should be elected with such an evident regard to merit, and disregard of all political and sectarian relations, as ever to carry the conviction that the equal good of the whole alone is sought. There can be no great difficulty in accomplishing all this, if it is well known in the outset that the people will keep their eye closely upon that man, whoever he may be, who, by any bargaining for votes, or any direct or indirect local, sinister, or selfish action or influence, or any evasion or postponement, or by any desire to tamper and amend merely to show himself off to advantage, shall in any way embarrass or endanger this greatest of all interests ever committed to a free State — the interest of properly and worthily educating all the sons of her soil. Let the people set on such a man, if the miscreant wretch lives, for all future time, a mark as much blacker than the mark set on Cain as midnight is darker than noonday. This is a question, above all others, that a man who is a man will desire to meet openly and frankly, like a man. Will our legislators do it? I, for one, believe they will. I shall not believe the contrary till it is proved; and I will even suggest, in general, a mode by which the great end may be safely gained. Let others, however, suggest a better one, and I will cheerfully accord with it.

"Let the Governor of the State nominate a board of trust for the funds of the institution. Let this board consist of five of the most able and discreet men in the State, and let at least four of them be taken from each of the extreme corners of the State, so remote from all proximity to the possible location of the institution, both in person and in property, as to be free from all suspicion of partiality. Let the Senate confirm such nomination. Let this board be sworn to locate the institution from a regard to the interests and convenience of the people of the whole State. And, when they have so done, let them be empowered to elect twelve new members of their own body, with perpetual power of filling their own vacancies, each choice requiring a vote of two thirds of the whole body, and, upon any failure to elect at the appointed annual meeting, the Governor of the State to fill the vacancy for one year, if requested by any member of the board so to do. Let any member of the board who shall be absent from any part of its annual meetings thereby forfeit his seat, unless detained by sickness, certified at the time, and the board on that occasion fill the vacancy either by his re-election, or by the choice of some other man. Let the funds then, by the same act, pass into the hands of the trustees so organized, as a perpetual trust, they giving proper bonds for the same, to be used for the endowment and erection of an industrial university for the State of Illinois.

"This board, so constituted, would be, and ought to be, responsible to no legislature, sect, or party, but directly to the people themselves — to each and every citizen, in the courts of law and justice, so that, should any trustee of the institution neglect, abuse, or pervert his trust to any selfish, local, political, or sectarian end, or show himself imcompetent for its exercise, every other member of the board and every citizen at large should have the right of impeaching him before the proper court, and, if guilty, the court should discharge him and order his place to be filled by a more suitable man. Due care should be taken, of course, to guard against malicious prosecutions.

"Doubtless objections can be urged against this plan, and all others that can be proposed. Most of them may be at once anticipated, but there is not space enough to notice them here. Some, for example, cherish an ardent and praiseworthy desire for the perfection of our common schools, and desire still longer to use that fund for that purpose. But no one imagines that it can long be kept for that use, and, if it could, I think it plain that the lower

schools of all sorts would be far more benefited by it here than in any other place it could be put.

"Others may feel a little alarm when, for the first time in the history of the world, they see the millions throwing themselves aloof from all political and ecclesiastical control, and attempting to devise a system of liberal education for themselves; but, on mature reflection, we trust they will approve the plan — or, if they are too old to change, their children will."

Professor Turner published an article based on the outline of his previous speech, "A State University for the Industrial Classes," in the *Prairie Farmer* in February, 1852. In this excerpt from a letter published the following month, he explains his idea for the financing of the Industrial University, through a system of federal grants of land to the states. This was the first time the idea of federal land grants for industrial education had been suggested.

EXCERPT FROM A LETTER BY JONATHAN BALDWIN TURNER*

2. *The organization of a System of Industrial Education for this State, and for the U.S.*

And I am satisfied that if the farmers and their friends will now but exert themselves they can speedily secure for this State, and for each State in the Union, an appropriation of public lands adequate to create and endow in the most liberal manner, a general system of popular Industrial Education, more glorious in its design and more beneficent in its results than the world has ever seen before. There is wisdom enough in the State, and in the Union, to plan and conduct it — there are students enough to patronize it — there is useless land and wealth enough to endow it — and there are hearts enough that want it. Shall they have it? A proper movement now by the farmers' and mechanic's real friends will secure it — and no man, and no other person or interest in the universe will suffer for it. But there is always a tide in the affairs of men — let several of the States become committee to some other scheme, and the golden opportunity may be lost forever. Now, all is open and favorable, and the way is plain. Soon, it may not, and probably will not be so. Shall we not, then, labor for this end? and if plans now suggested are not the best, let us take that which is. But let us, by all means strive together, as one man, for the glorious end of the LIBERAL and *appropriate practical education* of EVERY CLASS, of *whatever name,* throughout the State, and throughout the Union.

Respectfully yours,
s/J. B. Turner.

---

* From the *Prairie Farmer,* Vol. XII (March, 1852), p. 114.

In 1855, Professor Turner collected some material for a bill to be introduced in the United States Congress embodying his plan. After several false starts, Professor Turner presented his material to Representative Justin Smith Morrill of Vermont, a warm friend of agriculture who had the political advantage of representing one of the older states. Representative Morrill introduced the bill on December 14, 1857.

The Morrill Bill incurred harsh opposition at first. After great difficulty, it was passed by Congress in 1859, but was immediately vetoed by President Buchanan. Finally, with the election of a favorable Congress, a bill similar to the Morrill Bill was introduced again in May, 1862, and signed into law by President Lincoln in July.

The Morrill Act provided for a grant of federal lands to the states for the endowment of industrial universities and, in Section 4, outlined the courses which these universities were to offer. A later amendment extended the time during which the states could accept the land grant.

THE LAND GRANT ACT OF 1862

Laws of Congress

AN ACT donating Public Lands to the several States and Territories which may provide Colleges for the benefit of Agriculture and the Mechanic Arts.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That there be granted to the several states, for the purposes hereinafter mentioned, an amount of public land, to be apportioned to each state, in quantity equal to 30,000 acres for each senator and representative in Congress to which the states are respectively entitled by the apportionment under the census of 1860: *Provided,* That no mineral lands shall be selected or purchased under the provisions of this act.

2. *And be it further enacted,* That the land aforesaid, after being surveyed, shall be apportioned to the several states in sections or sub-divisions of sections not less than one-quarter of a section; and whenever there are public lands in a state, subject to sale at private entry, at one dollar and twenty-five cents per acre, the quantity to which said state shall be entitled, shall be selected from such lands, within the limits of each state; and the secretary of the interior is hereby directed to issue to each of the states, in which there is not the quantity of public lands subject to sale at private entry, at one dollar and twenty-five cents per acre, to which said state may be entitled under the provisions of this act, land scrip to the amount in acres for the deficiency of its distributive share; said scrip to be sold by said states, and the proceeds thereof applied to the uses and purposes prescribed in this act, and for no other use or purpose whatsoever: *Provided,* That in no case shall any state to which

land scrip may thus be issued, be allowed to locate the same within the limits of any other state, or of any territories of the United States; but their assignees may thus locate said land scrip upon any of the unappropriated lands of the United States subject to sale at private entry, at one dollar and twenty-five cents or less per acre. *And provided further,* That not more than one million acres shall be located by such assignees in any one of the states. *And provided further,* That no such locations shall be made before one year from the passage of this act.

3. *And be it further enacted,* That all the expenses of management, superintendence and taxes from date of selection of said lands, previous to their sales, and all expenses incurred in the management and disbursement of the moneys which may be received therefrom, shall be paid by the states to which they may belong, out of the treasury of said states, so that the entire proceeds of the sale of said lands shall be applied, without any diminution whatever, to the purposes hereinafter mentioned.

4. *And be it further enacted,* That all moneys derived from the sale of lands aforesaid, by the states to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the states, or some other safe stocks, yielding not less than five per cent upon the par value of said stocks; and that the money so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided in section fifth of this act), and the interest of which shall be inviolably appropriated by each state, which may take and claim the benefit of this act, to the endowment, support and maintenance of, at least, one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

5. *And be it further enacted,* That the grant of land and scrip hereby authorized, shall be made on the following conditions, to which, as well as to the provisions hereinbefore contained, the previous assent of the several states shall be signified by legislative acts:

First — If any portion of the fund invested, as provided by the foregoing section, or any portion of the interest thereon, shall, by

any action, or contingency, be diminished or lost, it shall be replaced by the state to which it belongs, so that the capital of the fund shall remain forever undiminished; and the annual interest shall be regularly applied without diminution to the purposes mentioned in the fourth section of this act, except that a sum, not exceeding ten per centum upon the amount received by any state under the provisions of this act, may be expended for the purchase of lands for sites or experimental farms, whenever authorized by the respective legislatures of said states.

Second — No portion of said fund, nor the interest thereon, shall be applied directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings.

Third — Any State which may take and claim the benefit of the provisions of this act, shall provide, within five years, at least not less than one college, as prescribed in the fourth section of this act, or the grant to such state shall cease; and said state shall be bound to pay the United States the amount received of any lands previously sold, and that the title to purchasers under the state shall be valid.

Fourth — An annual report shall be made regarding the progress of each college, recording any improvements and experiments made, with their cost and results and such other matters, including state industrial and economical statistics, as may be supposed useful; one copy of which shall be transmitted by mail free, by each, to all the other colleges which may be endowed under the provisions of this act, and also one copy to the secretary of the interior.

Fifth — When lands shall be selected from those which have been raised to double the minimum price in consequence of railroad grants, they shall be computed to the states at the *maximum price, and the number of acres proportionally diminished.*

Sixth — No state, while in a condition of rebellion or insurrection against the government of the United States, shall be entitled to the benefits of this act.

Seventh — No state shall be entitled to the benefits of this act, unless it shall express its acceptance thereof by its legislature within two years from the date of the approval by the President.

6. *And be it further enacted,* That land scrip issued under the provision of this act, shall not be subject to location until after the first day of January, 1863.

7. *And be it further enacted,* That land officers shall receive the same fee for locating land scrip issued under the provisions of this act, as is now allowed for the location of military bounty land warrants under existing laws: *Provided,* Their maximum compensation shall not be thereby increased.

8. *And be it further enacted,* That the governors of the several states to which scrip shall be issued under this act, shall be required to report annually to congress all sales made of such scrip until the whole shall be disposed of, the amount received for the same, and what appropriation has been made of the proceeds.

APPROVED July 2d, 1862.

[*U.S. Stat. at L.,* 1861-63, pp. 503-505.]

AN ACT to amend the fifth section of an act entitled "An Act donating public lands to the several States and Territories which may provide Colleges for the benefit of Agriculture and the Mechanic Arts," approved July two, eighteen hundred and sixty-two, so as to extend the time within which the provisions of said act shall be accepted and such colleges established.

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress assembled, That the time in which the several states may comply with the provisions of the act of July two, eighteen hundred and sixty-two, entitled "An act donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts," is hereby extended so that the acceptance of the benefits of said act may be expressed within three years from the passage of this act, and the colleges required by the said act may be provided within five years from the date of the filing of such acceptance with the commissioner of the general land office: *Provided,* That when any territory shall become a state and be admitted into the Union, such new state shall be entitled to the benefits of the said act of July two, eighteen hundred and sixty-two, by expressing the acceptance therein required within three years from the date of its admission into the Union, and providing the college or colleges within five years after such acceptance, as prescribed in this act: *Provided, further,* That any state which has heretofore expressed its acceptance of the act herein referred to, shall have the period of five years within which

to provide at least one college, as described in the fourth section of said act, after the time for providing said college, according to the act of July second, eighteen hundred and sixty-two, shall have expired.

APPROVED July 23, 1866.

[*U.S. Stat. at L.*, 1865-67, pp. 208-209.]

With the passage of the Morrill Act by the federal government, and with its acceptance by the Illinois Legislature in 1863, competition among interests in Illinois for the location of the new University was keen. The Illinois Legislature passed a bill giving the various candidate towns the legal means to advance their causes.

After considerable deliberation, it was finally decided to locate the University in a building on some land provided by the communities of Champaign and Urbana. The legislation provided in detail for the organization of the University, and in Section 7 substantially repeats the text of the Morrill Act concerning the kind of courses to be offered.

Additional legislation later reorganized the Board of Trustees with nine members (1873), changed the name to the University of Illinois (1885), and provided for the election of the Trustees (1887).

THE ILLINOIS LEGISLATION

Laws of Illinois

AN ACT accepting the donation of Public Lands from Congress, approved July 2d, 1862.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That the act passed by the Congress of the United States, donating public lands to the several states and territories which may provide colleges for the benefit of agriculture and the mechanic arts, approved July 2, 1862, be and the provisions therein contained, accepted by this state.

2. Be it further enacted, That the Secretary of this state inform the Secretary of the Interior, at Washington, that the State of Illinois, through their Legislature, has accepted the donation in said act.

APPROVED, February 14, 1863. [*Sess. L. Ill.,* 1863, p. 64.]

AN ACT in relation to the location of the Industrial University.

Whereas, Each portion of the state is alike interested in the proper location of said University, and it is desirable to enable the public spirit in each community or section to fully compete for such location; therefore,

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That any county, city, township or incorporated town of said state, may, by taxation, as well as by voluntary subscription of its citizens, raise a fund to secure the location of said University at any point whatever; and any other

corporation in this state may make bids and subscription for the purpose of securing said location at any point whatever.

2. That any county, through its county court or board of supervisors, and any township or town, through its supervisor, assessor and collector, and any city or incorporated town, through its council or board of aldermen, or other constituted authorities, as the case may be, may subscribe such sum or sums as they may deem necessary, to secure such location, and to raise the amount or amounts so subscribed by taxation, or by issuing bonds, payable at any seasonable or convenient time, and bearing any rate of interest not exceeding ten per cent. per annum: *Provided, however,* That no tax shall be levied for such purpose until the proposition so to raise a fund, together with the amount to be raised shall, after at least ten days notice, be submitted to a vote of the people so to be taxed, and be approved by a majority of the persons voting at such election: *Provided,* That the county clerk of such county shall order an election in accordance with the provisions of this act: *And provided, also,* That it shall not be obligatory on any county, city or town authorities, or county clerk, as aforesaid, to submit any such proposition to a vote of the people, unless at least one hundred of the legal voters of said county, city or town shall petition for the same; in which event said election or elections shall be ordered: *And provided further,* That any election heretofore held in any county, city or town, for the purpose aforesaid, is hereby legalized and made valid.

3. The county, city or town authorities, as aforesaid, are hereby invested with full power to make any and all needful orders and regulations to carry into effect the foregoing provisions; and in case of an election being applied for, as aforesaid, it shall be the duty of said authorities to give the usual and seasonable notice, required by law, according to this act, and the end in view, and to conduct and report the same in the usual way. Such election to be conducted and return made according to the law governing elections: *Provided,* That the registry of voters used at the last general (election) shall be the registry for any election to be held under this act.

4. This act shall be a public act, to take effect and be in force from and after its passage.

APPROVED January 25, 1867. [*Sess. L. Ill.,* 1867, p. 122.]

AN ACT to provide for the organization and maintenance of the Illinois Industrial University.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That it shall be the duty of the governor of this state within ten days from the passage of this act, to appoint five trustees, resident in each of the judicial grand divisions of this state, who, together with one additional trustee, resident in each of the congressional districts of this state, to be appointed in like manner, with their associates and successors, shall be a body corporate and politic, to be styled "The Board of Trustees of the Illinois Industrial University;" and by that name and style shall have perpetual succession, have power to contract and be contracted with, to sue and be sued, to plead and to be impleaded, to acquire, hold and convey real and personal property; to have and use a common seal, and to alter the same at pleasure; to make and establish by-laws, and to alter or repeal the same as they shall deem necessary, for the management or government, in all its various departments and relations, of the Illinois Industrial University, for the organization and endowment of which provision is made by this act. Said appointments to be subject to approval or rejection by the senate at its next regular session thereafter, and the appointees to be and they are hereby authorized to act as trustees as aforesaid, until their successors shall be appointed by the governor and such appointment shall be approved by the senate.

2. The members of the board of trustees, and their successors, shall hold their office for the term of six years each: *Provided,* That at the first regular meeting of said board, the said members shall determine, by lot, so that, as nearly as may be, one-third shall hold their office for two years, one-third for four years, and one-third for six years from the first day of said meeting. The governor, by and with the advice and consent of the senate, shall fill all vacancies which may at any time occur by expiration of term of office, or otherwise, in said board, by appointment of suitable persons resident in the respective grand divisions and congressional districts in which such vacancies may occur. Said board of trustees may appoint an executive committee of their own number, who, when said board is not in session, shall have the management and control of the same, and for that purpose have and exercise all the powers hereby conferred on said board which are necessary and proper for such object.

3. In case the board of trustees shall at any time determine to establish a branch or department of said University at any points elected by them, such branch or department shall be under the control of the members of said board residing in the grand division

and congressional district where such branch shall be located, unless otherwise ordered by said board of trustees: *Provided,* That no portion of the funds resulting from the congressional grant of land for the endowment of said University, or from any donation now or hereafter to be made by the county, city or town at or near which the University is located; and no portion of the interest or proceeds of either of said funds shall ever be applied to the support of any branch or department located outside of the county wherein said University is located by this act.

4. The first regular meeting of the board of trustees shall be held at such place as the governor may designate, on the second Tuesday in March, A. D. 1867, at which meeting they shall elect a regent of the University, who, together with the governor, superintendent of public instruction, and president of the state agricultural society, shall be, *ex-officio,* members of said board of trustees. Said regent, if present, shall preside at all meetings of the board of trustees and of the faculty, and shall be charged with the general supervision of the educational facilities and interests of the University. His term of office shall be two years, and his compensation shall be fixed by the board of trustees.

5. At the first, and at each biennial meeting thereafter, it shall be the duty of the board to appoint a treasurer, who shall not be a member of the board, and who shall give bonds, with such security as the board of trustees shall deem amply sufficient to guard the University from danger of loss or diminution of the funds intrusted to his care. The trustees may appoint, also, the corresponding secretary, whose duty it shall be, under the direction or with the approval of the trustees, to issue circulars, directions for procuring needful materials for conducting experiments, and eliciting instructive information from persons in various counties, selected for that purpose, and skilled in any branch of agricultural, mechanical and industrial art; and to do all other acts needful to enable him to prepare an annual report regarding the progress of the University, in each department thereof — recording any improvements and experiments made, with their costs and results, and such other matters, including state, industrial and economical statistics, as may be supposed useful; not less than five thousand copies of which reports shall be published annually, and one copy be transmitted by said corresponding secretary, by mail, free, to each of the other colleges endowed under the provisions of an act of congress, approved July 2, 1862, entitled "An act donating lands to the several states and territories which may provide colleges for the benefit of agriculture

and the mechanic arts;" one copy to the United States secretary of the interior; and one thousand copies to the secretary of state of this state, for the state library, and for distribution among the members of the general assembly. Also a recording secretary, whose duty it shall be to keep faithful record of the transactions of the board of trustees, and prepare the same for publication in said annual report. The said treasurer, corresponding and recording secretaries to receive such compensation as the trustees may fix, and to be paid in the same manner as the teachers and other employees of the University are paid.

6. No money shall be drawn from the treasury of the University, except by order of the board of trustees, on warrant of the regent, drawn upon the treasurer, and countersigned by the recording secretary.

7. The trustees shall have power to provide the requisite buildings, apparatus and conveniences; to fix the rates for tuition; to appoint such professors and instructors, and establish and provide for the management of such model farms, model art, and other departments and professorships, as may be required to teach, in the most thorough manner, such branches of learning as are related to agriculture and the mechanic arts, and military tactics, without excluding other scientific and classical studies. They may accept the endowments of voluntary professorships or departments in the University, from any person or persons or corporations who may proffer the same, and, at any regular meeting of the board, may prescribe rules and regulations in relation to such endowments, and declare on what general principles they may be admitted: *Provided,* That such special voluntary endowments or professorships shall not be incompatible with the true design and scope of the act of congress, or of this act; and they shall, as far as practicable, arrange all the regular and more important courses of study and lectures in the University, so that the students may pass through and attend upon them during the six autumn and winter months, and be left free to return to their several practical arts and industries at home during the six spring and summer months of the year, or to remain in the University and pursue such optional studies or industrial avocations as they may elect: *Provided,* That no student shall at any time be allowed to remain in or about the University in idleness, or without full mental or industrial occupation: *And provided further,* That the trustees, in the exercise of any of the powers conferred by this act, shall not create any liability or indebtedness in excess of the funds in the hands of the treasurer of the University

at the time of creating such liability or indebtedness, and which may be specially and properly applied to the payment of the same.

8. No student shall be admitted to instruction in any of the departments of the University who shall not have attained to the age of fifteen (15) years, and who shall not previously undergo a satisfactory examination in each of the branches ordinarily taught in the common schools of the state.

9. Each county in this state shall be entitled to one honorary scholarship in the University, for the benefit of the descendants of the soldiers and seamen who served in the armies and navies of the United States during the late rebellion — preference being given to the children of such soldiers and seamen as are deceased or disabled; and the board of trustees may, from time to time, add to the number of honorary scholarships when, in their judgment, such additions will not embarrass the finances of the University; nor need these additions be confined to the descendants of soldiers and seamen; such scholarships to be filled by transfer from the common schools of said county, of such pupils as shall, upon public examination, to be conducted as the board of trustees of the University may determine, be decided to have attained the greatest proficiency in the branches of learning usually taught in the common schools, and who shall be of good moral character, and not less than fifteen (15) years of age. Such pupils, so selected and transferred, shall be entitled to receive, without charge for tuition, instruction in any or all departments of the University for a term of at least three (3) consecutive years: *Provided,* Said pupil shall conform, in all respects, to the rules and regulations of the University, established for the government of the pupils in attendance.

10. The faculty of the University shall consist of the chief instructors in each of the departments. No degrees shall be conferred nor diplomas awarded by authority of the board of trustees, or of the faculty, except that the trustees, on recommendation of the majority of the faculty, may authorize the regent of the University to issue to applicants certificates of scholarship, under the seal of the University; which certificates shall, as far as practicable, set forth the precise attainments, as ascertained by special examination, of the parties applying for the same, respectively, in the various branches of learning they may have respectively studied during the attendance in the University; and every pupil who shall have attended upon instruction in the University for not less than one year, maintaining, meanwhile, a good character for faithfulness in study and correctness of deportment, and who may desire to cease such attendance,

shall be entitled to receive such certificate of scholarship as is authorized by this section to be issued. All certificates of scholarship shall be in the English language, unless the pupil should otherwise prefer; and all names and terms on labels, samples, specimens, books, charts and reports shall be expressed, as nearly as may be, in the English language.

11. No member of the board of trustees shall receive any compensation for attending on the meetings of the board. At all the stated and other meetings of the board of trustees, called by the regent or corresponding secretary, or any five members of the board, a majority of the members shall constitute a quorum: *Provided,* All the members have been duly notified.

12. It shall be the duty of the board of trustees to permanently locate said University at Urbana, in Champaign county, Illinois, whenever the county of Champaign shall, according to the proper forms of law, convey or cause to be conveyed to said trustees, in fee simple, and free from all incumbrances, the Urbana and Champaign Institute buildings, grounds and lands, together with the appurtenances thereto belonging, as set forth in the following offer in behalf of said county, to-wit:

"The undersigned, a committee appointed by the board of supervisors of Champaign county, are instructed to make the following offer to the state of Illinois, in consideration of the permanent location of the Illinois Industrial University at Urbana, Champaign county, viz: We offer the Urbana and Champaign Institute buildings and grounds, containing about ten acres; also, one hundred and sixty acres of land adjacent thereto; also, four hundred acres of land, it being part of section No. twenty-one, in township No. nineteen north, range No. nine east, distant not exceeding one mile from the corporate limits of the city of Urbana.

"Also, four hundred and ten (410) acres of land, it being part of section No. nineteen, township No. nineteen, range No. nine east, within one mile of the buildings herein offered.

"Also, the donation offered by the Illinois Central Railroad Company of fifty thousand dollars' worth of freight over said road for the benefit of said University.

"Also, one hundred thousand dollars in Champaign county bonds, due and payable in ten years, and bearing interest at the rate of ten per cent. per annum, and two thousand dollars in fruit, shade and ornamental trees and shrubbery, to be selected from the nursery of M. L. Dunlap, and furnished at the lowest catalogue rates, making an estimated valuation of four hundred and fifty thousand dol-

lars ($450,000). Titles to be perfect, and conveyance to the state to be made or caused to be made by the county of Champaign, upon the permanent location of the Illinois Industrial University upon the said grounds, so to be conveyed as aforesaid, and we hereby in our official capacity guarantee the payment of the said bonds and the faithful execution of the deeds of conveyance, free from all incumbrances, as herein set forth.

W. D. Somers
T. A. Cosgrove
C. R. Moorhouse,
Committee"

13. The board of trustees shall, by and with the advice and consent of the governor and adjutant general, procure all such arms, accoutrements, books and instruments, and appoint such instructors, as may, in their discretion, be required to impart a thorough knowledge of military tactics and military engineering, and they may prescribe a uniform dress to be worn by the pupils of the University.

14. That upon the organization of the board of trustees and appointment of said treasurer, and the filing with and the approval by said board of the bond of said treasurer, and all of said foregoing acts being duly certified to the governor, under the hand of said regent, countersigned by the said recording secretary, it shall then become the legal duty of said governor to deliver over to said treasurer the land scrip issued by the United States to this state, for the endowment of said University, and that thereupon it shall become the duty of said treasurer to sell and dispose of said scrip at such time, place, in such manner and quantities, and upon such terms as such board shall, from time to time, prescribe, or to locate the same as said board may direct. Said treasurer being in all respects pertaining to the sale of said scrip, and the reinvestment of the proceeds received therefor, and the securities when reinvested, subject to such order and control of said board as is not inconsistent with this act and the act of congress providing for the endowment of said University.

15. That all the right, title and interest of the state of Illinois in and to said land scrip, is hereby invested in the Illinois Industrial University, for the use and purposes herein contained; and said scrip shall be assigned to said University by the governor of the state of Illinois on each certificate, and attested by the secretary of state, under the seal of the state; and that the transfer of said scrip to purchasers by assignment on the back thereof, by the said officers

of said University, under the seal thereof, in manner following, shall be deemed sufficient in law, to-wit:

STATE OF ILLINOIS, }
Illinois Industrial University, } ss.

For value received, the state of Illinois Hereby sells and assigns to ..... the within scrip, and authorizes ..... to locate the same and obtain a patent on such location.

Given under our hands and the seal of the said University this ..... of ..... A.D. 186.....

A. B., *Regent.*
C. D., *Treasurer.*

Countersigned by
E. F., *Recording Secretary*

16. That upon said treasurer making sale of any of said scrip, he shall at once invest the fund so received, report the same to the said board, stating amount sold, price obtained and how the same was by him invested; which report shall be filed with the recording secretary, who shall transmit a copy of the same to the governor of said state, and he to the congress of the United States, in accordance with said act of congress.

17. That the said board shall order upon its minutes which of the several kinds of securities mentioned in the fourth section of said act of congress said treasurer shall invest proceeds of sales in.

18. The bond required to be given by said treasurer shall be conditioned for the faithful discharge of his duties as treasurer of the "Illinois Industrial University," and for any breach thereof suit may be instituted, in the name of the "Illinois Industrial University;" and it shall be deemed a criminal offense for any person or persons holding in trust any part of the funds of said University knowingly or negligently to misapply or misappropriate the same, indictable in any court having jurisdiction, in the same manner that other crimes are punishable, by fine or imprisonment, at the discretion of the court, according to the nature of the offense.

19. This act shall be a public act and take effect and be in force from and after its passage.

APPROVED February 28, 1867. [*Sess. L. Ill.*, 1867, p. 123.]

AN ACT to regulate the Illinois Industrial University, and to make appropriations therefor.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That it shall be the duty of the

governor, within ten days after the taking effect of this act, to appoint nine trustees — three in each of the three grand divisions of this state — who, together with the governor and the president of the state board of agriculture for the time being, shall constitute the Board of Trustees of the Illinois Industrial University, and shall succeed to and exercise all the powers conferred by the act entitled, "An act to provide for the organization and maintenance of the Illinois Industrial University," approved February 28, 1867, except as is herein or may be hereafter provided by law. The said appointments shall be subject to approval or rejection by the senate, at its present or next session thereafter, and the appointees shall be and are hereby authorized to act as trustees of the said University from the time of such appointment, unless in case of rejection by the senate, until their successors shall be appointed by the governor, and such appointment shall be approved by the senate.

#2. The members of the board of trustees, and their successors, shall hold their office for the term of six years each: *Provided,* that at the first regular meeting of said board, after such appointment, the said members shall select by lot three of their number to hold office for two years, three to hold office for four years, and three to hold office for six years, from the time of convening of the present general assembly. The governor, by and with the advice and consent of the senate, shall fill all vacancies which may at any time occur by expiration of term of office, or otherwise, in said board, by appointment of suitable persons resident in the respective grand divisions in which such vacancies may occur. Said board of trustees may appoint an executive committee of three, chosen out of their own number, who, when said board is not in session, shall have the management and control of the said University and of its affairs, and for that purpose shall have and exercise all the powers hereby conferred on said board which are necessary and proper for such object, except in so far as the said board may and does reserve such powers to itself, and any powers granted at any time, by said board to said executive committee, may be by them at any time revoked.

#3. No member of said board shall hold or be employed in or appointed to any office or place under the authority of the board of which he is a member, nor shall any member of said board be directly or indirectly interested in any contract to be made by said board for any purpose whatever.

#4. The fiscal year of the said University is hereby declared and required to terminate on the thirty-first day of August in each year, and all reports of the University, except catalogues and circulars,

shall be addressed to the governor, and the annual reports shall contain a full account of the financial and other transactions of the University to the close of the fiscal year, as aforesaid, together with a full statement of the then condition of the endowment fund, and shall be presented to the governor on or before the fifteenth day of October in each year: *Provided,* that no less number of said reports be published annually than is now authorized by law.

#5. The trustees of the said University shall elect, annually, from their own number, a president, who shall also be one of the executive committee of three authorized by this act, in case such committee should be chosen and appointed by the said board; and no money shall be drawn from the treasury of the University, except by order of the board of trustees, or of the executive committee aforesaid, on the warrant of the president of the said board, countersigned by the recording secretary.

#6. All pupils attending the said University shall be taught, and shall study, such branches of learning as are related to agriculture and the mechanic arts, and as are adapted to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life, without excluding other scientific and classical studies, and including, for all male students, military tactics.

#7. The treasurer of the said University, and the said board, are hereby required in future to invest the principal of the funds arising from the endowment of the United States, in interest-bearing bonds of the United States, or of this state, or of other states which did not participate in the late rebellion. They are hereby prohibited from changing the securities in which said fund may be invested, without the express permission of the general assembly, except in county bonds, in which some of said funds are now invested, may be sold and the proceeds thereof invested in interest-bearing bonds of the class and character specified above in this section.

#8. All charges for freights heretofore or hereafter accruing over the Illinois Central railroad for the use or benefit, directly or indirectly, of the said University, shall be applied on the subscription of fifty thousand dollars to the funds of said University, until the said subscription shall be exhausted, and no such freights shall be paid in money by the trustees to any person or corporation, nor shall any money be drawn from the treasury of the state on account thereof, nor on account of such application.

#9. There is hereby appropriated, for the full payment of the architect, superintendent, and the entire completion of the main

University building of the said Industrial University, the sum of fifteen thousand dollars; for heating apparatus for the same, eighteen thousand dollars; for gas fixtures, including street main connection, one thousand two hundred dollars; for fitting and furnishing said building, seven thousand three hundred and fifty dollars; for furniture and apparatus for the physical laboratory, three thousand dollars; or so much of the sums specified for each of the above named purposes as may be necessary.

#10. The auditor of public accounts is hereby authorized and directed to draw his warrant upon the treasurer for the moneys herein appropriated, in favor of the parties to whom the same may be and become due, upon proper vouchers, signed by the president of the board of trustees, and attested by the secretary, with the corporate seal of the University attached, and approved by the governor.

APPROVED, May 7, 1873. [*Sess. L. Ill.*, 1873, p. 16.]

AN ACT to change the name of the Illinois Industrial University.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That the Illinois Industrial University, located at Urbana, in Champaign county, shall, after the passage of this act, be known as the University of Illinois, and under that name and title shall have, possess, be seized of and exercise, all rights, privileges, franchises, and estates which have hitherto belonged to, or may hereafter inure to the said Illinois Industrial University.

APPROVED, June 19, 1885. [*Sess. L. Ill.*, 1885, p. 252.]

AN ACT to amend sections one (1) and two (2) of an act entitled, "An act to regulate the Illinois Industrial University, and to make appropriations therefor," approved May 7, 1873, in force July 1, 1873.

SECTION 1. *Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That sections one (1) and two (2) of an act entitled, "An Act to regulate the Illinois Industrial University, and to make appropriations therefor," approved May 7, 1873, in force July 1, 1873, be and are hereby so amended as to read as follows:

"SECTION 1. There shall be elected at the general election to be held in the several precincts and counties of this state on the

Tuesday next after the first Monday of November, in the year of our Lord one thousand eight hundred and eighty-eight, and at each general election every two years thereafter three shall be elected, three trustees of the University of Illinois; and the trustees so elected, together with the governor, the president of the state board of agriculture, the superintendent of public instruction, and those persons who may have been appointed by the governor to be trustees of said University and whose terms of office shall not have expired, shall constitute the board of trustees of the University of Illinois, and shall succeed to and exercise all the powers conferred by the act entitled "An act to provide for the organization and maintenance of the Illinois Industrial University," approved February 28, 1867, except as is herein or may be hereafter, provided by law.

"#2. The trustees to be elected as provided in this act, shall be voted for on the same ballots with the state officers to be chosen at such recurring general elections, and the election of said trustees shall be conducted, and the canvass, statement, and return of the votes cast for said trustees shall be made in the same manner, and by the same officers, and shall be governed in every particular by the laws of this state governing a general election. The term of office to be held severally by the trustees so elected, and by their successors, shall be six years from the second Tuesday of March next succeeding the dates of their several elections, and until their successors shall have been elected and qualified: *Provided,* in case of vacancy in said board, such vacancy shall be filled by appointment by the governor until the next general election. Said board of trustees may appoint an executive committee of three chosen out of their own number, which committee, when said board is not in session, shall have the management and control of the University, and of its affairs, and for that purpose shall have, and exercise, all the powers which are necessary and proper for such object, except in so far as the board may reserve such powers to itself, and any powers granted at any time by said board to such executive committee, the board may at any time revoke."

This bill having remained with the Governor ten days, Sundays excepted, the General Assembly being in session, it has thereby become a law.

Witness my hand this 15th day of June A. D. 1887.

HENRY D. DEMENT,

Secretary of State.

[*Sess. L. Ill.,* 1887, p. 306.]

Immediately following the first meeting of the Trustees in March, 1867, a committee of Trustees headed by Regent Gregory began consideration of the specific courses that ought to be offered by the new University. In less than two months the committee submitted this report detailing its proposals.

The report suggested that a wide variety of courses be offered in the areas of agriculture and mechanics, but against potentially strong opposition throughout the state it also proposed that some courses in the area of liberal education, extending even to the reviled classical languages, be offered. The inclusion of classical studies in the curriculum raised some initial difficulties for the University in the state, but as the committee predicted, it provided a much stronger foundation for the ultimate development of a great institution of higher education.

REPORT OF THE COMMITTEE ON COURSES OF STUDY AND FACULTY FOR THE ILLINOIS INDUSTRIAL UNIVERSITY*

Inasmuch as some time must necessarily elapse before the University can be properly equipped and prepared for opening, the Committee present, now, only the outlines and some of the general features of a plan of organization, hoping to be permitted, by fuller consultation with each other, and with eminent educators in other States, who are engaged in organizing similar institutions, to ripen their plans more fully before presenting them in detail. In laying the foundations of an institution which is to last through coming ages, and to affect all future generations, we have need to plan wisely. We must not expose ourselves, needlessly, to the inconveniences of changes, nor to suspicions of caprice.

The General Aims of the University

The aims of any institution necessarily control its organization. It should be fitted to its uses. The great general aims of the University are defined by the statutes under which it is established. Though not strictly confined by law to the objects proposed in the Congressional grant, we are yet bound to meet those objects fully and fairly. According to the language of the grant, "the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are

* Presented before the second meeting of the Board of Trustees of the University on May 8, 1867. The committee was appointed by the Regent following the first meeting of the Board in March, 1867. From the *First Annual Report of the Board of Trustees of Illinois Industrial University,* 1868.

related to agriculture and the mechanic arts, in order to promote the liberal and practical education of the industrial classes, in the several pursuits and professions in life."

Or, changing the order of statement, the chief aim of the University is, "*the liberal and practical education of the industrial classes,* in the several pursuits and professions in life;" and in order to this end, the University is "to teach such branches of learning as are related to agricultural and the mechanic arts, without excluding other scientific and classical studies, and including military tactics." The military tactics are required, and the scientific and classical studies are permitted. Such at least is the common construction of these clauses, though the language may not unreasonably be understood to imply that the latter studies *shall not* be excluded from the course.

The State law evidently aims to carry out the intention of the Congressional grant, and gives the trustees power "to appoint such professors and instructors, and establish and provide for the management of such model farms, model art and other departments, as may be required to teach, in the most thorough manner, such branches of learning as are related to agriculture and the mechanic arts, and military tactics, without excluding other scientific and classical studies." Under any construction the Legislature evidently intended to insist — as the law of Congress insists — on the industrial and military education, yet explicitly allowing the trustees to enlarge the scope of studies as they may see fit.

A clear insight into the real intention of the Congressional grant may be gained if we call to mind that the colleges, existing at the time of the passage of the act making this grant, were adapted only to fit men for the so-called "learned professions," and that the influence of these colleges tended to withdraw their students from the pursuits of industry. Congress therefore proposed to create a new class of colleges, which should train men for industrial pursuits, and help to turn some portion of the great currents of educated life into the channels of industry. They aimed to link learning more closely to labor, and to bring the light of science more fully to the aid of the productive arts. Any other interpretation of the design of Congress than this would involve an absurdity.

The Industrial College was not an expression of Congressional condemnation of the ordinary college, or opposition to it. A grant of a township of land in each new State had already provided for State Universities of the common sort. And besides these, rich and

powerful seats of learning were every where fitting men for the great public fields of Law, Medicine and Theology. Congress only sought to extend still wider the benefits of science and liberal culture. They wished to establish other seats of learning, equally great and equally powerful, which should send scholars of high scientific attainments and broad and liberal culture, to the farms and workshops of the country.

And finally, as it was not the object of the Industrial Colleges to educate simply the sons of farmers and mechanics, so it was not their design to teach the mere manual arts of agriculture and manufacture. The college course can not replace the apprenticeship in the shop or on the farm; and if it could, a hundred such Universities as this could not train to their various trades, the future farmers and mechanics of this State. Some practice should, if possible, accompany the scientific study of the several arts, but the aim of this practice must be to insure the thorough comprehension of the principles involved. To teach the millions their trades, however desirable, is beyond our power. To so teach the few who will come and patiently complete their course, that they shall be thorough masters of practical science, and able in their turn to teach others, this is the worthy and attainable end of the University.

The committee profoundly appreciate and commend the far-reaching wisdom and beneficence of these aims of the Congressional grant, and would seek to carry them out to the very letter. They have discussed thus fully the intent of the Congressional enactment, in order to brush aside the false impressions which may have gained currency, and to bring out into clearer relief this grand idea of the Industrial University, as it lies involved in both State and National statutes — a true University, organized in the interest of the industrial, rather than of the professional pursuits, and differing from other Universities in that its departments are technological rather than professional — schools of Agriculture and Art, rather than schools of Medicine and Law. Its central educational courses, while equally broad and liberal are to be selected to fit men for the study and mastery of the great branches of industry, rather than to serve as introductions to the study of law, medicine, or theology.

This broad idea of the Industrial University proceeds upon the two fundamental assumptions: First, that the agricultural and mechanical arts are the peers of any others in their dignity, importance and scientific scope: and, Second, that the thorough mastery of these arts, and of the sciences applicable to them, requires an

education different in kind, but as systematic and complete as that required for the comprehension of the learned professions. It thus avoids the folly of offering as leaders of progress in the splendid industries of the nineteenth century, men of meager attainments and stinted culture, and steers clear also of that other and absurder folly of supposing that mere common school boys, without any thorough discipline, can successfully master and apply the complicated sciences which enter into and explain the manifold processes of modern agriculture and mechanic art.

Nor is it forgotten that man is something more than the artisan, and that manhood has duties and interests higher and grander than those of the workshop and the farm. Education must fit for society and citizenship, as well as for science and industry. The educated agriculturist and mechanic will not unfrequently be called to serve in Senate Chambers and gubernatorial chairs, and will need an education broader and better than the simple knowledge of his art.

The State has need every where, but especially in the center and at the head of the great industries, on which, as on corner stones, rest down her material progress and power, of broad-breasted, wise-hearted, clear-thinking men — men of rich, deep culture, and sound education.

And besides all this, it should be reflected that half the public value of a body of educated and scientific agriculturists and mechanicians will be lost, if they lack the literary culture which will enable them to communicate through the press, or by public speech, their knowledge and discoveries; or if they are wanting in that thorough discipline which will make them active and competent investigators and inventors, long after their school days are over.

Nor would we forget, nor attempt by a one-sided education to restrain, that free movement and versatility of American life and genius which leads so many of our more eminent citizens to the successive mastery of several vocations. Let us educate for life, as well as for art, leaving genius free to follow its natural attractions, and lending to talent a culture fitting it for all the emergencies of public or private duty. If some of our graduates shall quit, for a time, the harvest field for the forum, or prefer medicine to mechanic art, we shall hope they will demonstrate that, even in professional life, the education we give is neither inferior nor inadequate. And in riper years they will return to their first love, and bring their gathered wealth and honors to lay them in the lap of the agriculture and art we have taught them. Let the State open wide, then, this Pierian fount of learning. Let her bid freely all her sons to the full

and unfailing flow: those whose thirst or whose needs are little, to what they require; those whose thirst and whose capacities are large, to drink their fill. Let the University be made worthy the great State whose name it bears; worthy the grand and splendid industries it seeks to promote; and worthy of the great century in which we live.

Departments and Courses of Instruction

Having thus defined the general idea and aims of the University, the Committee suggest the following enumeration of departments, with the courses of instruction in each:

I. *The Agricultural Department* — Embracing:
   1. The course in Agriculture proper.
   2. The course in Horticulture and Landscape Gardening.

II. *The Polytechnic Department* — Embracing:
   1. The course in Mechanical Science and Art.
   2. The course in Civil Engineering.
   3. The course in Mining and Metallurgy.
   4. The course in Architecture and Fine Arts.

III. *The Military Department* — Embracing:
   1. The course in Military Engineering.
   2. The course in Military Tactics.

IV. *The Department of Chemistry and Natural Science.*

V. *The Department of Trade and Commerce.*

VI. *The Department of General Science and Literature* — Embracing:
   1. The course in Mathematics.
   2. The course in Natural History, Chemistry, etc.
   3. The course in English Language and Literature.
   4. The course in Modern Languages and Literature.
   5. The course in Ancient Languages and Literature.
   6. The course in History and Social Science.
   7. The course in Philosophy, Intellectual and Moral.

It may not be found feasible to develop all these departments at the outset, but ultimately, even others may be added to those here enumerated.

The following brief exposition of some of the principal courses will exhibit their general scope:

1. The course in agriculture proper may embrace the study of common tillage, arboriculture, fruit growing, cattle and sheep husbandry, veterinary art, agricultural chemistry, and rural engineering and architecture.

Its aim will be to give a practical knowledge of the various kinds of soils, their composition and improvement, by chemical or by mechanical treatment; the several classes of crops, with the preparation of the soil, seeding, cultivation and harvesting of each; the rotation of crops, and preparation and use of fertilizers; vegetable anatomy and physiology, with the classification, values, and laws of growth and culture of the cereals, grasses and other useful plants, together with general botany; fruit growing, and the several modes of propagation, and the production of new varieties; arboriculture, with the nature and value of the various species of ornamental, shade and forest trees, the propagation, growth and care of forests, their importance and value in a prairie country, in their effects upon climate, vegetation and health; animal anatomy and physiology, with a study of the breeds of domestic animals, and their values for the dairy, for fattening, for draught, and for wool or other products, and of the principles of stock-breeding; veterinary art, with the laws of feeding, care and training of the domestic animals; the apiary and poultry yard; agricultural chemistry, applied to the analysis of soils, fertilizers and food, etc.; entomology, especially including the useful insects and those injurious to animal life; meteorology and climatology; rural architecture and engineering, embracing the planning of farm buildings, and the laying out, draining and fencing of farms; political economy, the laws of production, consumption and markets; real estate jurisprudence, the laws regulating the tenures and transfers of land, the laws relating to rural affairs; the history of agriculture, and general views of the husbandry of foreign countries. To these studies should be added, either to prepare for the foregoing, or as necessary to complete education, courses in mathematics, language and literature, mental and moral philosophy, logic, history and science of government.

The instruction should be partly by text-books, and partly by lectures, enforced by observation and practice in the laboratory, and the various departments of the experimental farm.

2. The course of instruction in horticulture may comprehend most of the studies already described under the course in agriculture, omitting stock-breeding and veterinary art, and adding to the fruit-growing, the culture of the small fruits and culinary vegetables, and

the culture of flowers; the construction and management of the hot-bed, the green-house, the grapery, the seed-plot and the nursery; landscape gardening, the laying out and ornamentation of public and private pleasure grounds, parks, cemeteries, etc. The methods of instruction should be like those in the department of agriculture.

3. The courses in mechanics, civil engineering and mining belong, properly, to the polytechnic school. All the fundamental sciences involved in them being taught at the University, these courses may also be developed there. The committee defer the delineation of a course of instruction in this department till the question of the extent of its means of development is settled.

4. Military tactics being specifically required by the act of Congress, the development of this department, to such an extent as may be found practicable, should be undertaken at the outset. While the effect of this department will be to scatter through the State a body of men, so far advanced in military art, that, in case of war, they will furnish skillful officers, ready to drill and lead the volunteer forces of the country, it is the opinion of many experienced educators that the introduction of the military drill and discipline is of positive value for their educating influence. They will materially assist in the government of the institution, and tend to form those habits of order and punctuality, for want of which so many educated men fail of usefulness and success.

It is strongly recommended by eminent military officers, that some simple and tasteful uniform be prescribed for all the students, as the law contemplates and provides; that the organization partake somewhat the military form, and that a daily drill be had in military tactics. The uniform would not be more expensive than ordinary clothing, and its use would repress extravagance in dress, and promote a feeling of democratic equality among the whole body of students. It will help, also, to stimulate the virtues of personal neatness and manly courtesy of demeanor.

By frequent rotations in office, and by making those eligible to office who merit it by proficiency in drill, and by good soldierly conduct, a sufficient stimulus would be gained to insure attention, and both the faculties of obedience and command would be developed. Students of the first year might be required to serve in the ranks and as non-commissioned officers, the higher officers being selected from the advanced classes. Some new drill might also be introduced for each advanced class, and thus the interest be sustained.

Besides the field exercises, some elementary text books should be used, and the students be required to read for recitations or for examinations on the general principles of military science.

It is hoped by the friends of military education that provision will soon be made by Congress for the detail of competent officers of the army to act as professors of military science in the colleges introducing it, and that in this way the university may be provided with instructors in this department.

5. The course in chemistry and natural science will embrace the study of analytical and practical chemistry, the analysis of soils, ores, minerals and organic bodies, and the applications of chemistry in agriculture and the arts of dyeing and bleaching and the manufacture of sugar, salt, glass, etc. It will embrace, also, the more extended and practical study of mineralogy, geology, and natural history in general, with the arts of collecting and preserving specimens, and of arranging cabinets and conducting geological surveys.

6. The instruction in the department of trade and commerce will have for its aim to give students a knowledge of the principles of business, and of the customs and laws of trade — the collection, transportation, exchange and distribution of the valuable products of nature and art. Such knowledge will be eminently valuable to the educated farmer, and is of vital necessity to those who are to be employed in the great commercial branches of industry. The crowded rooms of the commercial schools, meagre and unscientific as the instruction of these schools often is, prove conclusively the felt need of such a department of instruction, and the university would be incomplete in its industrial courses if it should leave this important form of human industry unprovided for.

The studies in this department, in addition to such literary studies as are necessary for the requisite discipline and culture, and such knowledge of natural sciences as may be needful to an understanding of the origin, nature, quality and cost of the commodities, crude and manufactured, known to commerce, should embrace also political economy, the laws of production, exchange and consumption as they affect markets; the theories of banking, insurance, and foreign and domestic exchange; the laws governing importation and exportation, the several classes of imposts, duties, etc., and the theories connected therewith; commercial geography, with the staple commodities of the different regions and nations, their commercial condition, usages and markets; book-keeping in its several forms, commercial customs, papers and correspondence; and finally, commercial law and the history of commerce, with its growth and vari-

ations. Such knowledge, while it would make intelligent business men, farmers, merchants and manufacturers, and managers of the great business enterprises of the nation, would help to prevent those ruinous speculations and disastrous failures which spring as often from a pitiable ignorance of the great fundamental laws of trade, as from a willful violation of them.

Department of General Science and Literature

The several courses in this department make up the general educational or college course. Their main aim is to furnish such a liberal education as may best fit students either for the mastery of the special courses in the arts, or for the general duties of life. The final composition and adjustment of this central course will demand the most careful consideration. The conflicting views which prevail as to relative values of different branches of learning, and the consequent disposition to scout some as useless, and to magnify others as of overshadowing importance, make it requisite for us to recur briefly to some fundamental principles which ought to control our selection.

The knowledges considered as instruments of culture or education, may be broadly grouped into four grand divisions, as follows:

1. Natural sciences, or sciences of observation and experiment.
2. Mathematics, or the science of imagination and calculation.
3. Linguistic and philological sciences, or the sciences of formal expression.
4. Philosophical and speculative sciences, or the sciences of consciousness and reflection.

Each form of knowledge affects culture by two separate methods. First, by the kind and extent of the exercise its study affords the mind, and, secondly, by the exciting and stimulating effect of its proper ideas. Some studies are chiefly valuable for the former, and others for the latter use.

The natural sciences, or sciences of nature, embracing natural history, chemistry, natural philosophy, geology, physical geography and uranography, especially exercise and cultivate the powers of observation, classification and inductive reasoning.

The mathematical studies, embracing both pure and applied mathematics, exercise and develop the capacity to form and combine abstract conceptions, and cultivate the deductive reason. They also promote habits of mental concentration and continuity of thought.

Linguistic studies educate the discriminative judgment, and develop the power both of the expression and reception of thought. They train, also, the faculty of discursive reasoning, and help to give to the mental action a precision and clearness not otherwise to be gained.

The philosophical and speculative sciences, embracing mental and moral philosophy, and historical and social science, address themselves to minds already well matured, and powerfully exercise the reflective faculties. They especially develop the habit of looking for the fundamental and essential, in facts and things; of investigating the real nature and causes of social and vital phenomena, and of that reasoning from the contingent and the probable, which goes among us by the name of "common sense."

If we turn now to note the other educational force found in these several classes of knowledge — the stimulating power of their proper ideas — we shall find an equal diversity in the kind and degree of their influence; the philosophical studies being, to the majority of mature minds, the most stimulating, and the mathematical the least.

Natural science gives us a knowledge of physical facts and phenomena, and of the great forces and laws of nature underlying these. This knowledge has in all ages stimulated the most eager curiosity, and awakened the spirit of inquiry into physical causes. It has also excited the most wild and extravagant speculations.

The mathematics afford us only the knowledge of the abstract relations of quantity and number, and of certain formulas of analysis. It is by its problems that this science excites the mental activities. Its ideas lie mostly inert in the mind, except when wanted as instruments of calculation.

Language, like mathematics, is mainly concerned with relations; but it is with the relations of ideas and thoughts in all departments of knowledge. The study of language is the study of the connections, as well as of the expression, of thought. Grammar, as J. Stuart Mill has justly observed, is "incipient logic." But language is the *instrument* and the *store-house,* as well as the *vehicle* of thought. It is full of history, philosophy, science and poetry. It powerfully stimulates the thinking processes by the facilities it affords for the manufacture as well as the commerce of thought.

But no knowledge so profoundly stirs and stimulates the human mind as the great questions with which philosophy and history have to do. These questions come down to us from those great central heights of truth, unattainable, it may be, in their heaven-piercing summits, but still irresistibly attracting all great thinkers, and calling

for the mightiest efforts of the human intelligence in the struggle to master their mysterious and still unsolved problems.

It seems too obvious to need further argument that a true educational course must include these four classes of studies, and that if we would send forth a body of thoroughly educated agriculturists, to stand as the peers of the educated men found in other professions, we must give our students the benefits of a course with its full proportionate measure of each of these elements. "It is an ancient and universal observation," said that great thinker and teacher, Sir William Hamilton, "It is an ancient and universal observation, that different studies cultivate the mind to a different development; and as the end of a liberal education is the general and harmonious evolution of its faculties and capacities in their relative subordination, the folly has accordingly been long and generally denounced, which would attempt to accomplish this result, by the partial application of certain partial studies." Testimony could be multiplied on this point from the world's greatest thinkers.

It is not necessary that all the branches in each of these great classes of studies be included in the course. Provided that each class is represented in something like its due proportion, we are at liberty to select of two kindred studies, of nearly equal disciplinary power, that one which most conduces to the special uses we have in view. In making up a course for the Industrial University, we may wisely and safely depart from the common college curriculum; and, without losing any of its real advantages, may gain much special assistance for our industrial courses.

Studies of the University Course

In Physical Sciences, the course should embrace botany, zoology, mineralogy, chemistry, geology and physics, not in the stinted measure and nearly useless manner in which they are usually taught, but with such extent and thoroughness as shall give students a practical comprehension and knowledge of each. The scientific farmer or mechanic should be a good naturalist.

In Mathematics, beside algebra and geometry, the student of agriculture needs trigonometry and land surveying; while the mechanic and civil engineer require also analytical geometry, mechanics and the calculus. These studies, therefore, should find place in this general course.

In Language, the course should embrace a thorough study of our own language, its rhetoric and literature.

Of Modern Languages, it should include the French and German, taught with such thoroughness that the student may read them with ease, and converse in them with some facility. The scientific agriculturist ought to be able to avail himself of the fresh discoveries of the French and German men of science. He is shut out from the best scientific thinkers of the age, and from many of the best sources of knowledge, if he can not read the languages of France and Germany. And the prevalent use of these languages in our own country, among large masses of our population, gives to their study an additional value.

The Latin language, both because it enters so largely into our own and other modern languages, and because it is to such an extent the language of science, will demand a place in the course. As an instrument of linguistic culture, it greatly surpasses modern languages, and its literature is of perennial value. When well taught, no study more richly rewards the student. The Greek should be afforded, at least as an optional study, to all who desire to pursue it. It will never lose its value in the eyes of the highest grade of scholars.

Mental and Moral Philosophy, Logic, History, Political Economy, Civil Polity, and Constitutional Law, will all properly enter into the course as philosophical and speculative studies, and because of their high practical values.

A course, composed of these studies, reaching through four years, will fully equal, in its disciplinary power, the ordinary college course, and be of much more value to the student of the industrial arts.

It seems almost idle to say, we admit, many of these studies are not necessary to the mere practical farmer. Latin will not help a man to hold the plow, nor will mental philosophy teach how to fatten hogs. But, we reiterate, the Industrial University is not needed and was not founded for the common education of men, farmers or others. "The liberal and practical education" proposed by Congress will require all the amplitude of study here described.

It is not insisted that all students shall take this general course, though it is strongly recommended. Students may take up special courses without stopping to complete this, just as they may take a medical or law course at any other University, without first graduating from the college course.

The special courses in agriculture and the arts will comprehend many of the studies belonging to the general course, and they may be so arranged that a diligent student, of good abilities, while pursuing the regular University course, may also take up and carry forward one of the special technical courses. The studies of the

University course being the minimum of study required to entitle the student to regular standing, it will be found that many students can perform, successfully, more than this minimum.

By further arranging the special courses so as to connect them with the last three years of the University course, and by bringing them, as far as practicable, into the fall and winter session, we may comply with the provision of the law, and also allow students of Agriculture or Horticulture, alone, to complete their special studies in a three years' course.

Optional and Select Courses

The opinion gathers currency that students of mature age and experience should be permitted to enter our universities and colleges, and select for themselves such studies as they may need, and as they are qualified to pursue successfully with the regular classes in those studies. It may sometimes also occur that persons will desire to enter the university simply to attend some course of lectures, or to attain an insight into some agricultural or other industrial process, as the budding, grafting or pruning of trees, the management of a grapery, etc. Such students should be furnished with all the facilities consistent with the good order of the institution.

Qualifications for Admission

The question of the qualifications required for admission to the University is one demanding careful consideration. These requirements should not be so high as to virtually exclude those who might successfully pursue the course of studies, nor so low as to permit those who are unprepared to profit by a residence at the Institution, and whose time would be uselessly wasted in the attempt to grasp studies beyond their comprehension.

The law prescribes that "no student shall be admitted to instruction in any of the departments of the University, who shall not have attained to the age of fifteen years, and who shall not previously undergo a satisfactory examination in each of the branches ordinarily taught in the common schools of the State." The committee understand this language, not as fixing definitely the qualifications for admission, but only as determining their lowest limit. The Trustees may require both a maturer age and a higher grade of scholarship, whenever, in their estimation, the interests of the State and of the University require it. It would certainly be better if students never entered college under eighteen years of age; but the

average age of those applying for admission will doubtless be above this, without any special rule requiring it. Experience shows that students who enter college at a less age than that here indicated, are often injured by being thrown so early into the indiscriminate associations and powerful stimulation of college life. The University is the place for men rather than for mere boys.

It seems requisite that two different sets of qualifications shall be prescribed: the one for students who wish to pursue simply the studies of some select or partial course, and the other for candidates for the regular University courses.

1. Qualifications for Admission to Select Courses

Students may properly be admitted to take some select course, on passing a thorough examination in the common school branches of reading, writing, arithmetic, geography and grammar, and on evidence of sufficient maturity and intelligence to pursue successfully the studies selected by them.

2. Admission to Regular University Courses

While the Committee would wish to open the University as widely as possible to the youth of the State, they can not forget that its real utility will depend on establishing and maintaining a high standard of scholarship. As it can not legally do common school work, so neither ought it to undertake to do the work already provided for in the public high schools. It would prove a most sorry blunder if in our too eager desire to popularize the Institution, and under pretence of bringing its advantages within the easy reach of all, we should create a gigantic and expensive high school, and, having thus consumed our means, should fail to make any University at all. It is absolutely essential, if the University is to do the higher and scientific work required of it, that it shall leave the preparatory work mainly, if not entirely, to the public high schools and academies of the State; else it may fritter away its funds and its teaching forces, on the mere elementary work already sufficiently provided for, and leave undone all the great work which we ask at its hands for scientific agriculture and industrial arts.

The reasonable construction of the statute is, that while the University shall not comprehend the ordinary common school studies, it shall so arrange its terms of admission that the public schools may be able to meet them, and that there be left no unbridged chasm between the body of the State school system and the University at its head.

In the better class of public schools there are now taught, not only Grammar, Geography and Arithmetic, but also Algebra, Geometry, Natural Philosophy, History of the United States, and Human Physiology, and in very many of them the Latin language. All these may properly be prescribed, therefore, as preparatory studies for the University. They are all so elementary in character as to come within the easy comprehension of students under fifteen years of age; they all need to be studied as preparations for mastering the University course; and they may all be successfully taught in public high schools. In the Latin, the quality of the scholarship attained, rather than the quantity of the reading, may wisely be made the test, and the student should be admitted who can construe readily any passage in Cicero's Select Orations, or Virgil's Georgics and Aeneid.

The preparatory course above indicated, differs from that ordinarily prescribed for admission to colleges, in the omission of the Greek language, and in the extension of the requirements in mathematics and other studies. It is believed that this variation will not only better adapt the preparation to the peculiar character of the University, but will adjust the University much more nearly to the ordinary course of studies now generally taught in our public high schools. These schools universally teach Geometry and Algebra; but only in a few cases teach Greek to any great extent. The grade of scholarship required for admission will thus be made as high as that required at other Universities, though made up of different elements. To make the work of the Industrial University thorough and complete, demands that the preparation for it shall be also full and sufficient.

The argument for an elevated standard of qualifications for admission gains great force from the fact, that until the student has made as much progress as this preparatory course requires, he has not usually formed his purpose and tested his strength and ability to pursue a course of liberal or scientific study. The history of preparatory schools is full of proof that many of those who set out for a College course stop short of the College doors. Science, like scripture, has its "stony ground" hearers, who at first receive the word with joy, but who, when the hot sun of hard study is up, wither away. If our doors must be held open to every half-taught youth who is seized with a sudden ambition to "go to the University," our halls will be flooded annually with fresh hosts of mere tyros, who will stay only long enough to manifest their unfitness for the place, and then go forth to shame the Institution whose students

they will claim to have been; thus ruining its reputation, after helping to destroy or impair its usefulness.

Among this host of short-lived "students of the Industrial University" the State will look in vain for that long line of graduates — the ripe and scholarly leaders in her agriculture and her great industries — which she has hoped to see proceed annually from the University halls.

The Committee are confident that no person who properly considers the amount of more important work which the University has to accomplish, will wish to see its forces diverted to the teaching of these elementary branches which the high schools may properly claim as their own ground; and certainly no one who desires the success of the University, as a great scientific and industrial college, will wish to see students entering its classes with less preparation than is here prescribed.

It needs to be repeated that this does not forbid students of suitable maturity and experience to come to the University to take a few select studies, without passing an examination in Latin and the higher mathematics named.

Honorary Scholarships

The law for the organization of the University provides that "each county in the State shall be entitled to one honorary scholarship in the University, for the benefit of the descendants of soldiers and seamen who served in the armies and navies of the United States during the late rebellion; preference being given to the children of such soldiers and seamen as are deceased or disabled; and the Board of Trustees may, from time to time, add to the number of honorary scholarships, when in their judgment, such additions will not embarrass the finances of the University; nor need these additions be confined to the descendants of soldiers or seamen. Such scholarships to be filled by transfer from the common schools of said county, of such pupils as shall, upon public examination, to be conducted as the Board of Trustees of the University may determine, be decided to have attained the greatest proficiency in the branches of learning usually taught in the common schools, and who shall be of good moral character and not less than fifteen years of age." These scholarships entitle the incumbents to free tuition for three years.

The Committee recommend that the Regent, in connection with the Superintendent of Public Instruction, prepare examination papers, and transmit the same to the County Superintendent of Schools

in each county, who, with other examiners, appointed by the Regent and Superintendent, will see that the examinations are properly conducted, and will return the papers, with the written answers of the several candidates and with such testimonials as they may present, to the Regent, who shall determine on the papers and notify the successful candidates of their appointment.

A competitive examination, thus uniform in character and thus fairly conducted, can not but react with a most healthful stimulation upon the public school interests of the State; and this stimulation will be increased by a publication of the names of the schools in which the successful candidates were prepared, and the teachers by whom they were taught. In case any counties shall neglect to send students on their scholarships, the Regent may be authorized to award such scholarships, for the year, to suitable candidates from other counties.

Charges for Tuition, and Other Expenses

The Committee would rejoice if the condition of our funds and the provisions of the law would permit the University to be made free to all citizens of the State, and they cordially recommend that its tuition be made thus free at the earliest practicable moment; and that from the outset the charges be made as light as is consistent with justice to the Institution itself.

The charges in American Colleges range from a few dollars per annum to several hundreds. In Yale College the annual fees amount to $85. The annual fees at Harvard are $133. At the Michigan University each student pays a matriculation fee of $10, and an annual fee of $5. At the Michigan Agricultural College the tuition is free for citizens of the State. Students from other States pay $20 per annum. All students pay a matriculation fee of $5. The proposed fees for the Cornell University are $20 a year for tuition; matriculation fee $15.

The Committee recommend that the Academic year be divided into two semi-annual sessions, as nearly equal as may be, and that the tuition and other fees for each session be fixed at the following rates:

For tuition to students from other States,
$10 per term.....$20 per annum.
For incidentals, care and warming of public rooms, etc.,
$5 per term.....$10 per annum.
For room rent, $6 per term.....$12 per annum.

They recommend, also, that a matriculation fee of $10 be charged to each student on first entering the Institution. This fee is never charged a second time, but, once paid, entitles the student to all the privileges of membership at any time thereafter.

Students on the "honorary scholarships" will pay the matriculation fee and charges for room rent and incidentals, but will be charged nothing for tuition.

Boarding Department

The building is provided with the necessary rooms for a boarding department. It is believed that in a short time we may wholly dispense with this department, even if it must be opened at the outset. Suitable boarding houses will doubtless soon spring up in the neighborhood, and the rooms in the University building may be appropriated to more public and proper uses.

Students' Rooms

There are in the University buildings sixty-six rooms designed for students' dormitories, each dormitory being calculated to accommodate two students. These rooms are without furniture. It is customary to leave students to provide their own furniture, as they will ordinarily take better care of their own property than they will of that belonging to a public Institution.

Manual Labor System

One of the most important and difficult questions concerning the organization of the University, is that of the introduction of the manual labor system. It is true that the attempt to connect manual labor with schools has, in many instances, failed; but the nature and extent of this failure have not been generally understood. It has not failed because the students were unwilling to work, nor because the work was injurious either to their health or culture. It has simply failed to pay. The labor of students was found unprofitable.

The high success and utility of the labor system, as practiced at the Michigan Agricultural College, has, in the minds of your committee, fully demonstrated its feasibility and value; and they would heartily recommend its adoption here, provided similar conditions can be secured. There, each student is required by law to work three hours a day, unless excused on account of sickness. The professors accompany the students to the garden or field, and participate in and direct the work, which is made to illustrate the principles taught in the lecture rooms. Wages, according to the value of

the work done, not exceeding seven and a half cents an hour, are allowed the student, and he is thus enabled to pay a considerable part of the expense of his schooling by his labor. Even there the work has never yet proved remunerative to the institution, though it annually approaches nearer this result.

It should be added that the manual labor system, as practiced at the above named institution, has been carefully inspected by gentlemen sent from several of the Eastern States, and has been warmly commended, in their published reports, as eminently satisfactory and successful.

The chief advantages of the labor system are these:

1. It promotes the physical health and development of the student.

2. It cultivates habits of industry, and, keeping the student inured to muscular effort, renders his return to the farm, or other physical labor, natural and easy. This is a point of much importance, if we wish successfully to turn the tides of educated life into the industrial employments.

3. When made, as in the agricultural course, to bear upon the studies pursued, it creates a practical interest in, and comprehension of, those studies, which can not be obtained by mere abstract study.

4. When pursued, as here recommended, in the society of intelligent class-mates and teachers, and lighted with a knowledge of the reason of every process, it is not only pleasant, but comes to be seen as noble and dignified; and thus the sentiment of honor to labor is deeply implanted in the mind.

5. It aids the student to pay his own way, and cultivates in him the feeling of manly independence.

These considerations are so important that they incline us to recommend its introduction, even though it should fail to pay all the expenses attending it. But if proper care is taken not to establish too high a rate of compensation, the committee are not without hope that no loss need result, even if no profit is gained.

Apparatus of Illustration and Instruction

Each department in the University will require, besides the general cabinets or collections, some means of illustration and instruction peculiar to itself. For general study of the natural sciences there will be needed full and well classified collections of specimens in mineralogy and geology, in botany and in the various branches of zoology.

The departments of agriculture and horticulture will require, in addition, cabinets of seeds, grasses, grains and fruits; models or drawings of farming and garden implements, of farm buildings, and plans of farms, gardens, celebrated parks, and landscape gardens, etc.; and specimens and drawings of various breeds of domestic animals.

The department of mechanics and civil engineering, will demand a cabinet of models and drawings of machinery, architectural plans and plans of roads, bridges and other structures, and specimens of building materials, as the various woods, marbles, granites and more common building stones.

The military department will require its specimens or drawings of the various kinds of arms and military structures, together with plans of celebrated battle-fields, sieges, encampments, etc.

The department of fine arts will require casts, photographs or engravings of the great master-pieces in art. These may be obtained at reasonable rates, and original drawings, paintings and sculptures will, in due time, be added. The healthful, refining and stimulating influence of such collections on the minds of the young, must be seen to be properly appreciated.

The common working apparatus of instruction must embrace a good set of chemical and philosophical apparatus. The prominence due to chemistry in such an institution as this, will demand at the earliest practicable day, a separate and suitable building for a chemical laboratory, such as exists at Harvard, Yale and Amherst, and at the Michigan University.

The experimental farms, orchards and gardens, with the several stock barns, yards, pens, etc.; the mechanic shops, tools and machinery; the military arms and parade grounds; the engineer's tools, and the model counting house, will furnish the fitting apparatus for teaching in the several leading departments of special instruction.

As the collection of cabinets is a work of years, it is important that it begin at once, and that applications for duplicate specimens, casts, etc., be made as early as practicable, wherever they may be obtained. The friends of the University in the various sections of the State would doubtless donate many specimens, if a brief circular, containing a statement of our wants, and instructions for packing and forwarding, were sent out.

Faculty

The committee were also instructed "to suggest a faculty" for the University. In the entire work of organizing the institution, there is

no more difficult or important part than this. On the character and ability of its faculty, will the character and success of the University depend, more than upon all other circumstances taken together. Buildings, cabinets, libraries and rich endowments will be all in vain, if the living agents — the professors — be not men of ripe attainments, fine culture and eminent teaching powers.

Numerous applications have already flowed in upon the committee, but the time has been quite too brief, since the last meeting of the Board, to allow any such careful and extensive inquiries as would justify the committee in presenting any names at this time. Self-nominated candidates will always be abundant, but the men we want will need to be sought for as with lighted candles. The incumbent of a professor's chair should be no ordinary man. In this, its chief seat of learning, in which it proposes to provide for the highest education of its sons, and from which, as a great center of science, it seeks to diffuse light to all the great fields of its industries, the State needs men of the highest type, as scholars and as men. The qualifications of every candidate for a professorship must be rigidly scrutinized without fear or favor; and none but men of tried and proven ability must be admitted to a place. Older and ordinary colleges may do with second rate men; this University can only succeed with the best men.

A good college professor should have the three-fold qualification of eminent and extensive scholarship, at least in his department; thoroughly tested ability to teach; and high-toned, gentlemanly character and culture. The first two are indispensable qualifications; the third will never be overlooked by those who have marked how inevitably and ineffaceably the teacher impresses his manners and habits upon his pupils. If culture is the better part of education, high-toned character and genuine courtesy of manner and feeling are the better part of culture.

The number of professors must depend upon the extent of the endowments and the consequent ability to pay salaries. Until the Trustees shall determine upon the disposition of the land scrip, and thus approximately determine the prospective extent of its funds, this question of the numerical force of the faculty must remain unsettled.

The corps of instruction may properly embrace four classes of teachers: 1st. *Professors,* or principal instructors in each department of study. 2d. *Assistant Professors* — younger, or less accomplished teachers, employed in sub-departments, or to aid in depart-

ments in which the work can not be fully done by one man. 3d. *Lecturers,* or non-resident Professors — men eminent in some speciality of art or science, who may be employed to visit the University at specified seasons, and give courses of lectures. 4th. *Tutors,* or young men, employed temporarily to give instruction in the more elementary studies.

The Committee would indicate the following as among the more important departments or chairs of instruction:

1. The Professorship of Practical and Theoretical Agriculture.
2. " " of Horticulture.
3. " " of Analytical and Practical Mechanics.
4. " " of Military Tactics and Engineering.
5. " " of Civil Engineering.
6. " " of Botany and Vegetable Physiology.
7. " " of Zoology and Animal Physiology.
8. " " of Mathematics.
9. " " of Chemistry.
10. " " of Geology, Mineralogy and Physical Geography.
11. " " of English Language and Literature.
12. " " of Modern Languages.
13. " " of Ancient Languages.
14. " " of History and Social Science.
15. " " of Mental and Moral Philosophy.

In addition to these, the Committee would suggest the following lectureships:

1. The Lectureship of Veterinary Science.
2. " " of Commercial Science.
3. " " of Human Anatomy, Physiology and Hygiene.
4. " " of Constitutional, Commercial and Rural Law.

Several of these departments may, at the outset, be represented by the same man. The professor of Botany may also be professor of Horticulture; and the professor of Zoology may fill, likewise, the chair of Practical Agriculture. Civil and military engineering may be united in one chair; and the professor of Chemistry may teach also Mineralogy or Meteorology.

The professor of Practical Agriculture should be the superintendent of the experimental farm, with such foremen and other laborers under him as may be necessary to carry out his plans. The

farm is his laboratory and apparatus of instruction, by which he illustrates the scientific principles and theories which he teaches, and demonstrates both the truth and the value of his doctrines. His plans for the treatment of each field and crop, and for the several experiments to be tried, should be submitted to the Regent and Faculty, and after careful discussion and final adoption by them, or by the Executive Committee, should be put on record as the settled plan for that season, to be carried out under the careful supervision of the superintendent, and its progress and results fully recorded in the farm record.

In like manner, the professor of Horticulture should be superintendent of the gardens and ornamental grounds, and should, in the same way, present to the Faculty for their discussion and approval, his plans for the management of such grounds and gardens. He, too, when necessary, may be aided in his work by a foreman and other laborers. The students, in their labors in the gardens or on the farm, will be under the guidance of the professors whose instructions those labors are designed to illustrate and apply; and thus the lecture room and the field practice will teach the same truths, and throw upon each other the light of a mutual illustration.

The professor of Mechanics may have under his care such shops as may be needed on the grounds for purposes of repairs, or of such new constructions of any kind as may be easily made. With a small steam or caloric engine as a motor power, there may be run a variety of common machinery, such as the turning lathe, circular saws, mills for grinding feed, etc., and threshing and other machines, which will enable the instructor in this department to furnish practical illustration of the principles of mechanics. The truth taught to the eye is much more easily understood and remembered than that which is stated in mere words. Every where the practical methods should supplement and impress the theoretical instruction.

At the Michigan Agricultural College the students repair the farm tools and make many of them. Several important improvements in farming implements have already originated there, though they have, as yet, no fully provided mechanical department. Students are also employed in the erection of new buildings as they are needed, and they are said to soon excel common workmen in the excellence of their work.

Conclusion

In presenting this preliminary report, the committee purposely hold in reserve several points of much interest and importance,

which they hope to be able to present finally in a much more definite and satisfactory form than can be done with the information now in hand. Maturer consideration than the time now allowed them has permitted, may also lead to some modification of certain of the points here presented.

Fully comprehending the great magnitude and the immeasurable importance of the enterprise which they are seeking to shape into life and power, they can only bespeak for it the wise support and the just forbearance of all good and intelligent citizens.

An Industrial University such as we are planning is, in a large part, without precedent or example. The field of its labors is as yet almost untracked in its widest stretches. The very classes for whom its benefits are designed, are as yet not half persuaded of the importance and real value of those benefits. The farmers and mechanics, accustomed to regard higher education as needful and desirable only for professional men, and almost wholly incredulous as to the utility of science in its applications to their work, will look with slow-coming faith upon a University which proposes to make farming a scientific employment, and to lift mechanics into a learned profession. They have, in many cases, yet to be convinced that a highly cultured mind may be linked to a brawny hand, and that a classical scholar may feel at home in a workshop; aye! and find use for all his scholarship and taste in the successful practice of his art.

But the age is propitious. The working masses of mankind are waking to their needs, and calling for light. The thunder of the machinery by the side of which they toil, and the magic power of the new processes of arts which they daily employ, have roused the long slumbering power of thought. Brains are coming into use and honor in all the fields of human labor, and brains will speedily demand light and knowledge. In an age of learning, the farmer and the mechanic will soon come to covet the rich heritages of science for their sons. Already the children of the laboring classes are crowding the public high schools. They will not stop there. The University lies the next step beyond. They will crowd to its doors; and soon will begin to issue from its halls that long column, with its yearly additions, of graduates with broad brows, and science-lighted brains, bearing back to the farms and the workshops an intelligent skill and power, to invoke new and unwonted fruitfulness from the soil and from the mechanic's art. "If I had fifty sons," said a farmer who had reluctantly permitted his eldest boy to take a course at an

Agricultural College, and now brought his youngest to the same College, "If I had fifty sons they should all go to this College, for my boy, who graduated here, farms so much better than I ever did, skillful as I thought myself, that he is getting rich from his half of the crops he raises on my land, and I live like a prince on the remainder."

And the light of high and classic learning will be found as beautiful and becoming when it shines in an educated farmer's home, as when it gilds the residence of the graduated lawyer or physician. Rich libraries are already seen in the houses of some of our leading agriculturists, and no one has found that they hinder the growth of harvests, or unfit the hand of the reaper. When our Industrial University shall have come fully into its work, these libraries will be increased in number, and there will gather around the firesides in our farm houses, and in the homes of our master mechanics, groups of cultivated and intelligent people, the peers in knowledge, refinement and power of the best and bravest in the land.

And what richer growths shall yet start from these magnificent prairies to repay the farmer's toil, and what more splendid achievements shall yet spring from our myriad-handed mechanic art — what more beautiful bloom in our gardens, and more delicious fruits from our orchards — what more tasteful and convenient homes from our architecture and what grander and more abundant products from our multiplying manufactories — what nobler forms of civilization to grace our free institutions, and what better types of manhood to tell of the blessings of liberty and learning, when education shall have fully achieved this last triumph, and carried her victorious banner of light down into the fields where the toiling millions of mankind must still, by the stern but beneficent ordination of Heaven, "eat their bread in the sweat of their brows."

J. M. Gregory,
Newton Bateman,
Mason Brayman,
S. S. Hayes,
Willard C. Flagg,
Committee

Dr. John Milton Gregory, newly elected Regent of Illinois Industrial University, was a former Baptist minister educated at Union College in the classics. He had been State Superintendent of Public Instruction in Michigan and President of Kalamazoo College before coming to the University. In spite of his own classical education, he was interested in the new educational doctrines, and he was fully capable of devoting all his energies to his enthusiasm. He was an eloquent speaker and spent much of his time traveling about the state promoting the University.

In his address at the inauguration of the University, Regent Gregory explained in detail the philosophy under which he would administer the University's activities. In particular, he pointed out that an industrial university could not be content with just training a man's hands; it must also train his mind to the intelligent guidance of the work of his hands and to the intelligent exercise of his citizenship.

THE INAUGURAL ADDRESS OF REGENT JOHN MILTON GREGORY*

Gentlemen of the Board of Trustees, and Fellow Citizens of Illinois:

I should be something more or less than human not to feel the solemn pressure of this hour. From the outset, I comprehended both the greatness and the difficulty of the undertaking in which we are engaged. But, neither ought the greatness to appal, nor the difficulties to discourage us. Let them, rather, inspire to a nobler ardor, and urge to wiser and more determined efforts. The great enterprises of human civilization are not carried forward to their triumphant end by the play of children. They at once rouse and require the full-grown energies of strong men.

It is no ordinary work which we are set to do, and it comes to us under no ordinary conditions. We are not here to reproduce, in this new locality, some old and well known style of college or university. Nor are we permitted to sit down in quiet to invent, at our leisure, some new scheme of education, which, when settled to our own tastes, we may offer for public patronage, as a manufacturer offers a new fashioned piano or plough. No such easy task of leisure hours is allowed us. Hosts of earnest men are impatiently waiting to see how we will meet the great duty which the country has entrusted to us. The veteran advocates of industrial education are ready to scan, with keen vision, both our plans and our performances. The hungry eyes of toiling millions are turned, with mingled hope and fear, upon us, to see what new and better solution we can possibly

* March 11, 1868. The address was never delivered because previous speeches took up all the available time. From the *First Annual Report of the Board of Trustees of Illinois Industrial University,* 1868.

offer of the great problems on which their well-being and destiny depend. We have good need to act wisely as well as earnestly, in the presence of this great host of interested spectators.

But it is not merely the voice of our fellow citizens which has called us to this work. The Age itself, invites us. Slowly, a great want has struggled into definite shape in the hearts of mankind. The demand has arisen for deliverance from the evils of ignorance and for a more fit and practical education for the industrial classes. It is labor lifting its Ajax cry for light to guide its toil, and illuminate its life. Daily the feeling grows stronger, that the old courses of classical study do not meet the new and increasing wants of the working world. The industries are steadily and rapidly becoming more scientific. They are no longer the rude, manual arts of the olden times. They have brought the mighty powers of nature to their aid, and seek to conform their labors to the great laws of matter and life. Agriculturist and artisan find themselves working amid great and significant phenomena, which only science can explain; and they have caught glimpses of possible triumphs in their arts which they may win, if they can be educated to the mastery of better processes and more scientific combinations. Hence the cry for the liberal education of the industrial classes. This demand, as we have heard to-day [see Dr. Bateman's address], was rung by the eloquent voice of Prof. Turner and his colleagues throughout this State. I remember to have heard it echoing over the border, in a neighboring State. Agricultural Colleges, People's Colleges and Polytechnic Schools have sprung into existence in answer to this popular want, and even the old colleges have yielded so far to the pressure as to admit scientific courses of study. The demand, at length, made itself heard in the halls of Congress, and gained from the national representatives a munificent grant of public lands to found colleges for the industrial classes. A new era dawned. New institutions were to be organized, devoted to the industries, and having for their chief object, "the liberal and practical education of the industrial classes." The eyes of the nation have been turned towards the rising light, and vague, but mighty, hopes have gathered in the public mind. To us it is committed, here in Illinois, to realize these hopes. Rarely has a grander duty, nor, perhaps, a more difficult one, fallen to the lot of any body of men. We are the servitors of the age itself.

The great movements of the world are not the results of agitation; the agitation is, rather, the effect and evidence of the rising

movement. Not the invention of any reformer, but the logical outcome of the progress of science and art, is this new demand for a higher and better education of the industrial classes. The rising light of a new era of science has stolen over the world. A wakeful few, standing on some favored eminence, caught, before their fellows, the illuminating rays, but no human hand could much hasten its dawning, nor hinder its progress. The earth itself, obedient to the celestial attractions, was slowly, but steadily and with resistless force, rolling its inhabitants into the light. Sleepy eyes may refuse to see it, or fogy stupidity may obscure its progress, but the day never goes backward. The sun of the new era will rise to the zenith. Its light and heat will re-vitalize the world. The institutions which it brings forth will live and flourish in spite of all storms which may greet their birth or oppose their beginnings. The great demand which created them will insure their continuance, and urge them forward to their triumph. Should they fail, at first, the public voice will demand *reconstruction,* not destruction. The people, once aroused, will not endure to be cheated of their hopes. Industrial education — education devoted to the improvement of the great industries of the world, and to the enlightenment of the industrial classes, which is, in its fullest and best sense, the education of the people — this is the logical end to which all popular movement marches. Thus, gentlemen, we ride the crest of a great tidal wave of popular want and popular will, and this wave must bear us resistlessly forward to our destiny and our crown.

Let me not, in this, be the least unjust to other and older institutions of learning. They, too, have felt, deep within their venerable halls, the rising pressure of this popular want, and they are responding to its cry, by attempting such modifications in their courses of study as may adapt them to meet the wants of practical men. It has become fashionable for men to decry the old colleges, as though they were wholly antiquated and useless in this swift and practical age, but no true men will thus decry them. All over the land, their graduates lead the van in the struggle to elevate and bless the race of man. In the war for the Union, their professors and students enlisted among the earliest and fought with the bravest for the salvation of their country. Even this movement for industrial education found its earliest, strongest and most ardent advocates among the men who had been trained to think and speak at the old altars of learning, and the movement would never have come to this hour but for the able advocacy and the determined efforts of men whom

these very colleges reared up to power. We do not need to tear down others in order that we may take their places. Let these grand old institutions still go on with their work. Humanity owes them a great debt of gratitude for the light of learning shed by them o'er the homes and walks of men. But it is ours to organize a University wholly on this new and grand idea of education devoted to the practical industries of the world.

But though this University is thus the child of a great popular movement and is borne forward by the very tide of popular progress, it is not wholly without difficulties and dangers. Nay, let us not shut our eyes to the fact, more than ordinary perils surround it and obstacles of unwonted magnitude lie on its path. The very might of that great popular movement which bears us forward, threatens us always with catastrophe. He who navigates a torrent, will find abundant perils, however rapidly it may carry him on to his proposed end. It is no unfit service, and certainly is a prudent one, for this opening hour of the public career of the University, to note some of the chief difficulties which lie in its way. Caution will arm itself with new prudence, and courage will rise to a loftier energy and determination, from a nearer and clearer view of the obstacles to be encountered and overcome. And, perhaps, thoughtless and impatient criticism may abate some of its arrogance, and captious fault finding, when it sees how beset with difficulties is your way, as Trustees, and how mighty is the problem with which you are called to grapple.

The difficulties which lie in the way of a successful inauguration and operation of an Industrial University are chiefly of two classes:

1st. Those which are found in the internal organization and working of the institution; and,

2d. Those which lie in its external relations and surroundings.

Those of the first class consist mainly in the difficulty of combining the theoretical and the practical in education, and in the further difficulty of uniting the several departments of practical instruction in the same institution. These difficulties are much greater than a casual or careless observer will suspect.

To secure a familiar knowledge and mastery of the sciences is a work both toilsome and time-consuming. To accomplish this in the weakness and imperfection of youth necessarily so absorbs the strength and occupies the time, that the most practical teacher is puzzled to find leisure, either for himself or his pupils, sufficient to allow him to train them in those quick and accurate perceptions,

those prompt and familiar judgments, and that ready and skillful grasp and mastery of facts, formulas and forces which the practical applications of the sciences require. It is comparatively easy to load the youthful memory with the knowledge which has been wrought out by other minds, and to send our students forth to the encounters of life burdened, rather than armed, with the ponderous armor of some Saul of science. Education, under careless or unskillful teachers, always tends strongly towards this excessive use of mere verbal memory. It is much easier to learn and remember, than to investigate and think. But to link the scholarly study of truths and theories, the reasoning upon general laws, and the comprehension of sciences, in their completeness, with a practical mastery of their applications in the arts, is a work of double difficulty. Shall we simply teach the sciences without attempting to teach their practical applications, then we fall again into the error of the old schoolmen. Our science will be bookish learning. We have failed to forge the golden fetter which binds learning to labor. The industries will look in vain for skilled leaders from among our graduates. Shall we neglect all of science except its results, and grasping these by mere force of memory, give our whole attention to the processes of art? What is this more than the old apprenticeship? For science thus learned neither educates nor enlightens. Its possession would be an evanescent dream, and its influence a mere passing shadow.

Our problem requires us to unite scientific and art education — to make true scholars, while we make practical artisans, and to do this, not in one or two arts, but in the whole round of human industries.

But, great as are these internal difficulties, they are not insuperable. They may be met by a due union of patience and power. All the practical arts rest down on the great natural sciences, and every process of art is a scientific experiment. What we have to do is to combine, in some central and fundamental course of liberal education, these sciences in such measure and position that they may properly synchronize with and support the several art studies. And such is our plan. Our course in "Science, Literature and Art," is richly charged with the knowledges which underlie all the industrial arts, and these are so placed that all the special courses of instruction may grow from the central course, as branches grow from a supporting and nourishing trunk. We shall thus educate and teach at the same time. While we develop, we shall also direct; and the

applications of science will help to give zest and power to the study of science.

The propriety and utility of an educational course in an institution designed to teach the practical arts has been severely questioned. As well question the value of the trunk and roots to the tree. It is the branches, indeed, that bear the desired fruit, but branches and fruit must alike wither if the trunk be girdled or the roots decay. Our only hope for a successful solution of our problem lies in this possible union of sound education and the practical study of the arts. To make educated farmers and mechanics, we must both educate and teach farming and mechanics. Let either factor be wanting and the product will never be attained.

But it is to the external difficulties which surround our work that I wish to give the chief consideration of this hour. These difficulties lie mainly in the crude, vague, and often contradictory and impracticable opinions which occupy, to some extent, the public mind in regard to these industrial schools.

In a country like ours, where the people are the repositories of power, and where the will of the people is the real constitution of the State, where the public opinion is so often the standard of right, and where the popular feeling is the "power behind the throne" to which all rulers and institutions must alike bow, the public approval is the guerdon of success, and the prevalence of hostile or even of dissentient opinions becomes a real, if not an insuperable obstacle to the triumph of new plans. The vague and unconsidered judgment which simply criticises and objects is often as fatal as the settled and intelligent opposing convictions of those who hold another theory, especially in matters in which the public mind has not been fully enlightened.

The Industrial University is peculiarly a child of the popular will. Designed to promote, by education, the industrial interests of the largest classes of the people, and challenging, on this very ground, popular sympathy and support, it is on these accounts more liable to be affected by the fluctuations of public sentiment regarding it than institutions of a less popular constitution. A thousand noble but vague hopes and aspirations will look here to find the help they crave; a thousand deeply felt needs of skill or power will turn to this University for their supply without knowing precisely how it is to be gained. Evils long endured will send up here their appeal for remedies. Fierce resentments against old wrongs or fancied wrongs, and still fiercer resolves in favor of cherished reforms or fancied

reforms, will demand that these halls shall feed their hate or battle in their cause. Urged by such a variety of motives, and viewing the matter from such a diversity of standpoints, it will not be wonderful if an almost endless variety of plans shall be presented for our guidance.

Each theorizer will have some one or more favorite notions concerning education, and each will count his notion as of central value and importance, and will demand that the University shall be constructed on his idea as its chief corner stone. Unfortunately only one plan can be adopted, and its adoption will be the signal for a hundred men, of dogmatic turn, to shout that "a great mistake has been made." "The institution has failed of its great aim and purpose, and nothing but disaster can be expected till revolution shall come to right the wrong." The "mistake" is simply the failure to take their advice. The "purpose" lost sight of is their purpose, and the "disaster" is the loss of their approbation and patronage. They never seem to reflect that the adoption of their plans would have equally disappointed many others, perhaps, whose interest in the enterprise is equally great, and whose knowledge of its conditions may possibly be vastly greater.

This difficulty of conflicting views is one which is confined mainly to the outset of the enterprise. The success of the plans adopted will soon justify the wisdom of the Trustees, if it does not convert all friends of the University to their opinion. Success is its own argument and ends all debate.

A brief notice of two or three of the popular fallacies concerning these industrial schools founded by Congress, may help to enlighten honest inquiry, and to remove more speedily, hurtful errors.

1st. It is assumed by some that these institutions are specially designed for the education of the children of the industrial classes — the sons of farmers, mechanics, etc. If these sons are designing to follow the business of their fathers, then this conception is true; but if the farmer's sons are fitting themselves for doctors or lawyers, as is often their choice, then the University is not especially designed for them. If, on the other hand, the son of the lawyer, merchant, or preacher aims to become a scientific farmer, fruit-grower or mechanician, he will find here the precise instruction he needs. The University looks not to the parentage but to the purposed pursuits of its students. Its doors are open, indeed, to all, and the education it offers will be valuable in any pursuit or profession; but its great purpose is to give educated men to the industries.

Some have added to this mistake the notion that, since the University is designed, as they assume, to provide education for the farmer's children from the rural districts, it should give them the mere high school instruction which their district schools fail to give at home. I have been astonished to learn that one of the ablest and most prominent advocates of industrial education takes this view, and severely criticises the proposed courses of instruction because they do not come down to the capacity of common school children. Does he not see that public high schools are already provided in every county and in every village, even, at which these boys from the rural districts can find instruction of this sort much more conveniently and at much cheaper rates than the University can afford it? And does he not reflect that if the University should exhaust its teaching force in the attempt to provide instruction of this sort, it would prove but as a drop in the bucket for the hosts of this class, and that, while doing this, it must almost utterly fail to do the higher work required of it? Instead of a University devoted to the broad industries of a great State, it would become a mere academy or high school for one or two of the nearest counties.

2d. The more common and more troublesome forms of false opinion are those which relate to "practical education." The age is intensely practical. Its great triumphs in the practical arts have filled all minds and fired all imaginations. It scouts all knowledge and every form of education which does not promise immediate practical results. With Carlyle, it shouts, "the truth which holds good in working, cleave thou to that! All nature says, 'Yea, to that.'" Men, accustomed to quick and striking results, have grown impatient of the long periods of seed sowing and culture necessary to bring great mental harvests to ripeness.

And, certainly, when we remember the ages of wild and unproductive theorizings — the centuries which the intellect spent in dreams without results — we may well excuse the earnestness of the demand for practical tests of utility, and practical fruits of science. Not one whit too soon has this cry arisen, and none too earnestly is it pressed. The science which sheds no light on human pursuits, and the education which fits man for none of the great duties of his life are scarcely worth the attention of earnest men. The world has seen enough of the mere book learning which left the mind without power and the hand without skill. The age is too earnest, and the work men have to do is too real for such education as that

which the old schoolmen gave their disciples. But what is practical? By what test shall we try it? To what products must it minister? Let us look more narrowly at these questions.

There are three great spheres of human industry:

First. — There is the work of the Discoverer. It is his to withdraw himself from active pursuits and to give himself to a close and patient study of the phenomena of nature. By powerful and searching analysis he penetrates to the bottom and roots of nature's facts; by high and sustained reflection he mounts to the summit and compass of her great kingdoms, and lays his grasp, at length, upon her statute books of universal and unchanging laws. He seizes upon the long coveted secret of her works and, like Prometheus of old, brings the stolen spark of celestial fire down to earth to warm and light the homes of men. Thus Newton discovered the law of gravitation; Galvani, the force we call galvanism; Harvey, the circulation of the blood; Cuvier, the types in the animal kingdom; Franklin, the fact of aerial electricity; and Liebig, the chemical values of food. And thus many others are annually pressing into the great store-houses of nature's secrets, and bringing out its treasures to the aid of human arts.

The *second* sphere of industry is that of the Inventors. These workers take the great natural law, fact or force, revealed by the toil of the discoverer, and harness it into some labor saving machine, or deduce from it some new process of production. More numerous than the workers of the first class, these inventors are filling the world with their triumphs of art. The steamship, the sewing machine, the reaper and mower, and all the ten thousand implements and processes of useful art are the results of their toil. Often the discoverer is also an inventor, and not unfrequently the inventor has to take up the work of discovery, and develop or demonstrate the principle on which his machinery depends; but the two spheres must still remain forever distinct industries.

After the discoverers and inventors come the third great class of workers, the millions who, with stout hands and brave hearts, fill all the fields of productive toil with their practical power and skill. It is under their touch the soil yields its harvests, cities grow, shop and manufactory teem with rich products, commerce freights its ships and loads its cars, and world-transforming art puts forth all its power.

Now, of these three, which is the practical? or, rather, which is not practical? Without the Discoverer's work the Inventor would grope in darkness. Annually, hundreds of ingenious contrivances prove useless, because the law or principle they involve is misunderstood; and so art stands baffled at many a point waiting for the progress of scientific discovery to reveal some new and needed principle or force. And labor, stripped of the aids that invention has given it, would lose all its grand and wealth-producing power. The laborer would sink back into the ill-paid, ill-fed drudge of the barbarian age. To pronounce, then, that alone practical which lies next the last product, and which results in some material fruit, is to commit the blindest of follies. As well count the hand as the only practical member of the body, and cut off the head as a mere idle dreamer in the physical household.

Let us advance to a still higher stand and take a yet broader view of human effort. Besides the workers in physical things, there are those who work in the great realms of social and spiritual life — who culture the soul to higher power and arm it with finer sentiments, nobler purposes or higher and stronger resolves; who add to life new joys, to society new blessedness, and new values to all the forms of material wealth. Are not these, also, practical? Are not ideas possessions, as well as corn fields? Is not beauty a marketable quality, even in a horse? Is not the power to enjoy property as essential as the power to produce it? And is not an increase of motive power an essential condition to the increase of industry?

We repeat, then, to those who are so earnestly demanding that education shall be made practical, What is practical? Let us answer. Brains are practical. The most practical thing on earth is brain power — the power to see, reason and understand. In shop and field, in day labor or driving oxen, brain is better than brute force. As some writer has said, "brains are the best manure ever put on land." In peace or war it is not the heaviest battalions but the heaviest brains that win. And so that education is most practical which most develops brain power — power to perceive, judge and act.

It is true that knowledge is useful, and some knowledge is much more useful than others. If one desires to fish, it is desirable to know how to bait a hook. The knowledge of navigation is of great value to him who wishes to sail the seas. If it were possible to confine our sons to some one place and employment for life, then it

might be practicable to select for them a course of the most useful knowledge. But life is so free in its movements, the avenues to business are so open and attractive, that no one can predict the career of a single youth. Trained as a physician, he becomes a farmer, an editor, a schoolmaster, and a Congressman, by turns. Oscillating from wealth to poverty and from poverty to wealth, he leaves his smoking firesides in a dozen States to mark his migrations across the continent. Even if he adheres to agriculture, how wide the diversity of departments in which he may successively engage. Who then can foretell what knowledges he may require to guide him, and what will prove useless to him.

We do not mean to deny all differences in the practical values of knowledge, but we count that the most valuable which most stimulates and exercises the intellect. General principles are of more value than particular facts, and knowledge knit to practical applications arouses and interests more than analytical statements.

The main difficulty, however, which assails the University from this direction is the demand that one or another theorist will make, that studies which are favorites with them shall be admitted to prominent place, and studies which they dislike shall be scouted. It is fashionable with such men, in this age, to scoff at all linguistic studies, save some very simple study of the mother tongue. All attention given to foreign languages, and especially to ancient languages, is a waste of time. They would have our youths study things and facts, not mere words, forgetting that the mind admits nothing within it but ideas, and that words may express ideas as well, and often more clearly than things; and forgetting, likewise, that, while the study of things may train the eye to perception, the study of words is necessary to train the tongue to expression; and, finally, that languages and books must forever remain to us the chief avenue of knowledge, that in these art and science are constantly repositing and putting forth all their treasures of fact and thought.

But a more serious objection lies against these sticklers for their so-called useful knowledges. They are not the only parties to be consulted in the case. The young men who come here for education will have opinions of their own as to what they wish to study. Many of them will be men grown, and the youngest will have reached that period of opening manhood when the shadows of coming destinies and duties will have fallen upon them; and they will have begun to cherish aspirations and aims for themselves and to value studies

in proportion as they regard them useful to their purposes. By what right shall any of us step in between these young men and their choice and say to them you shall not study this, or, you shall study that. The homely old saw might be found true here, "One man can lead a horse to the pond, but ten men can not make him drink." While we justly revolt against the old tyranny which compelled every seeker of liberal learning to study the classics, let us not establish a counter tyranny to decree that no one shall study the classics. Let our University offer to the ardent and aspiring young men of the State a full table spread with every form of human knowledge, and bid them freely to the feast. Courses of studies should be offered but as hints and guides to the undecided and inexperienced. The student who has clearly discerned his wants, and settled his course, ought to be left free to pursue his own chosen paths of learning.

And the success of our special courses will be best secured by such a plan. Years may elapse before the love of agriculture and other arts, or the faith in agricultural science will induce any large number of earnest and aspiring young men to resort hither for the purpose of studying for industrial pursuits, but let us open freely to them all the fountains of learning, and we may tinge these fountains as we will with industrial science and sentiments.

And it is but just to agriculture itself and to the industrial arts, that their students should be aided by all that refines or strengthens the mind, and that their educated representatives shall be the peers of the most soundly cultured men, in the scope and value of their learning. We have an ambition to send forth to the great industries of the world, not men who are puffed up by some little smatterings of science, but clear-headed, broad-breasted scholars, men of fully developed minds — fit leaders of those great productive arts by which the world's civilization is fed and furnished.

Time forbids the mention of all the forms of false opinion which lie across the path of our progress. Our best answer to them will be our success in the plans we have adopted. If these succeed, no opposition can harm us. If we fail, no silence of enemy or critic can help us.

Nor shall I detain you to notice now all the hindrances from popular zeal, which will demand fruit ere our tree can be grown; or popular distrust, which will ask us to prove our power before it will allow us any of its sons to educate; from partisan or sectarian hostility or prejudices; from the old-time pride which will recoil from the very name of an industrial school; and from the apathy

which applauds but continues to neglect what it applauds. If our difficulties are confessedly great, our triumphs, when won, will be correspondingly great and momentous. A brief glance at the results which must follow our success will help to arm us for the fray and inspire us for our task.

1st. We shall effect the more formal and more perfect union of labor and learning. These two will be married in indissoluble bonds at our altars. The skilled hand and the thinking brain will be found compatible members of the same body. Science, leaving its seat in the clouds and coming down to work with men in shop and field, will find not only a new stimulus for its studies, but better and clearer light for its investigations and surer tests for its truths. And labor, grown scientific, will mount to richer products as well as easier processes. Thus, these two, Thought and Work, which God designed to go together, will no longer remain assunder.

2d. Labor itself will be elevated to honor. Lifted from under degradation and redeemed from unnecessary drudgery; lighted by science to its useful triumphs, and grown artistic in its tastes and power, it will no longer remain the mere mindless forth-putting of muscular movement, but mount to the higher ideal of human activities, over-mastering brute matter, and compelling it to give up of its beauty, uses and strength for the comfort of the family of man.

3d. Labor will be made more productive. Not only will learning aid it to new inventions and teach it more productive processes, but educated leaders of labor will go forth from these halls to organize its scattered and wasted forces, and to teach it the great secret of co-operative power. And thus, though we can educate but a few of the great numbers of the industrial class, these few will scatter the benefits of the University to all. The West Point for the working world, its trained cadets will lead the bannered march of the millions as they climb the ascents of honor, wealth and higher life. The hard and unskillful toil of the world is thrice as much as is needed to produce its present results. Give this toil fit leaders and guides, and it may be greatly diminished in amount and yet doubled in product.

4th. Our national power and perpetuity will be greatly promoted. How often in the late war were we told that, "in national conflicts, the longest purse wins." And certainly that nation will be richest which has the most of skilled labor among its people. The toil of the ignorant slave is as poor in product as in price.

But the influence of educated labor on the perpetuity of national

life may not be so obvious. History shows that the sure sign of national decadence and the certain prelude to national destruction is the growth of a spirit of idleness and luxury which relegates its labor to slaves and hirelings, and learns too late that muscular decay is the sure forerunner to mental imbecility. Nor need we go to effete or extinct nations to learn this serious truth. Among ourselves there is a constant revolution in progress. Individuals and families, energized and enriched by toil, are steadily rising from the lower ranks of society to take the place of those whose active brains, having exhausted the unrenewed muscular vigor of the stock, sink into effeminacy and so go down again to the bottom. "In the sweat of thy face shalt thou eat thy bread," is as true of nations as of individuals, and the nation that permits the industries to fall into contempt is next door to the ruin it deserves. A nobler and stronger nation will soon come to claim its place.

5th. But there remains a grander and broader triumph than all these. If we succeed, we shall demonstrate the practicability and point out the path of universal education. By the stern necessities of life, the great majorities of mankind must forever be found among the industrial classes. These constitute the great army corps — the heavy columns — the millions of the race. If now, labor is necessarily a drudgery and a degradation, it, as some economists of a Satanic school have affirmed, the elevation and ennobling of a few will be at the expense of the many who must be content to remain in humble subordination, then the education of the masses is an idle dream. For to teach them simply to read and write is not education. Those whom labor perpetually degrades, learning can never successfully lift up. Our schools can only now and then stimulate one to escape at once from ignorance and from industry that he may attain education and idleness. "These must have perished, or I myself must have been lost," said an old Greek philosopher, as he gazed upon the ruined fields which he had neglected for the sake of his mind. "I myself am saved, and, therefore, these can not perish," will be the reply of the educated farmer. Let us but demonstrate that the highest culture is compatible with the active pursuit of industry, and that the richest learning will pay in a corn field or a carpenter's shop, and we have made universal education not only a possible possession, but a fated necessity of the race. Prove that education, in its highest form, will "pay" and you have made for it the market of the world. The light which has heretofore fallen

through occasional rifts and on scattered hill tops, will henceforward flood field and valley with the splendors of a noontime sun, and the quickened intellect of the race will bloom with new beauty and burst into a richer fruitage of industrial arts.

Such, gentlemen, are the prospects that should cheer us. Such are the ends for which we labor. Let the University you to-day inaugurate but fulfill its office, and the State itself will feel the benign influence of its work.

This first Report of the Superintendent of Public Instruction concerning a functioning Illinois Industrial University was submitted as the initial wave of ill feeling over the curriculum of the University was beginning to subside. The Superintendent was able to report several of the major landmarks in the growing acceptance of Illinois Industrial University by the people of Illinois. Protests against the inclusion of classical studies in the curriculum were often virulent, as the report suggests. However, by 1870 many former critics had become hard and fast friends of the University.

By 1870, according to this report, instruction had begun in all of the proposed courses except mining and metallurgy. Total enrollment had risen to 230 students. The University was in every respect well under way.

ILLINOIS INDUSTRIAL UNIVERSITY*

Since the last biennial report, this State University has made rapid progress in the development of its plans, and is meeting with a success which is the best vindication of those plans. The Trustees, in their first published report on the organization, proposed a "University organized in the interest of the industrial rather than of the professional pursuits," and marked out the courses of departments of instruction as follows:

"I. *The Agricultural Department* — Embracing:
1. The course in Agriculture proper.
2. The course in Horticulture and Landscape Gardening.

"II. *The Polytechnic Department* — Embracing:
1. The course in Mechanical Science and Art.
2. The course in Civil Engineering.
3. The course in Mining and Metallurgy.
4. The course in Architecture and Fine Arts.

"III. *The Military Department* — Embracing:
1. The course of Military Engineering.
2. The course of Military Tactics.

"IV. *The Department of Chemistry and Natural Science.*

"V. *The Department of Trade and Commerce.*

"VI. *The Department of General Science and Literature* — Embracing:
1. The course in Mathematics.
2. The course in Natural History, Chemistry, etc.

---

* From the *Eighth Biennial Report of the Superintendent of Public Instruction of the State of Illinois,* 1869-70. This is the first report of the University as a functioning institution.

3. The course in English Language and Literature.
4. The course in Modern Languages and Literature.
5. The course in Ancient Languages and Literature.
6. The course in History and Social Science.
7. The course in Philosophy, Intellectual and Moral."

All of these Departments and courses are now organized, and instruction has actually commenced in all, except those of Mining and Military Engineering. Preparations are in the making to open a course of instruction for Mining Engineers, and it is hoped that some additional aid from Congress will ere long enable the University to begin instruction in Military Engineering, for which there has arisen an unexpected demand. The comparison of the above scheme of Departments with the latest circulars of the University, will show how little the steady course of the Trustees has veered from their first published programme. With the exception that some of the subordinate courses are now raised to the rank of Departments, no changes seem to have been made necessary by the progress of the University. Few new Institutions have found so little occasion for change, either in the general aims or particular plans with which they set out: and the Trustees may point with a just pride to this practical proof of the care and skill with which their first programme was prepared.

At the opening, only a few students entered, and these being of the lowest grade, only a small part of the proposed plan appeared in the actual work, and much public apprehension was felt lest the University should fail to meet the great ends of the law; but steadily, as class after class has advanced to the more direct practical work of the courses, this apprehension has given way to almost unqualified praise, and all see now that the plans were not only in accordance with the law, but wisely adapted to the objects in view.

To such a pitch had this public apprehension been pushed, that resolutions of censure were passed by the last Legislature, doubtless under some misinformation as to the facts. And the 2nd day of March last, a convention of delegates from several of the county agricultural societies assembled at Bloomington and appointed a committee of five gentlemen of large intelligence to visit and inspect the University and its operations. After a full and thorough investigation, the committee called a second convention on the State Fair grounds, at Decatur, where they presented the following report, which, after a free discussion, was unanimously adopted:

The committee appointed by the convention at Bloomington, in March last, to visit the Illinois Industrial University and investigate its management, respectfully submit the following report:

The question before us for determination has been whether the University is fulfilling the intention of its original friends and advocates, or whether it has been or is likely to be conducted in violation of the laws of Congress making, and of the State Legislature accepting, a donation of public lands to the State of Illinois for the benefit of agriculture and mechanic arts. From a careful study of the discussions, resolutions, newspaper articles and essays by the originators of the movement in behalf of the better industrial education, we conclude that they plainly desire to inaugurate a new era in the life of the laboring classes. There were already established schools of special training for lawyers, physicians, and theologians. They wished to establish similar schools of special training for farmers and mechanics, in order to secure to them a higher intellectual culture and development, and thus render their calling more honorable, in the hope of counteracting the influences which are driving the young men of the land off the farms and out of the work-shops into other walks of life. Such schools, they believed, would not only make rural life more happy, by making it more beautiful, but would do much to develop the vast material resources of our country. After years of earnest agitation and labor they obtained from Congress an act recognizing the justness of their convictions and providing the means of making them practically effective. The act grants certain public lands to the several States and Territories for the endowment, support and maintenance in each of at least one college where the leading object shall be, without excluding scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts.

The language of the act of the Illinois Legislature, approved February 28, 1867, is very similar. While the Legislature wisely authorized the acceptance by the trustees of voluntary endowments of professorships or departments in the University at Champaign, it expressly provides that such special voluntary endowments shall not be incompatible with the true design and scope of the act of Congress, or this act. Notwithstanding these plain declarations and provisions, it is not possible to doubt the existence of a very widespread and deep distrust on the part of the industrial portion of the community as to the faithful execution of the law by the faculty and trustees. The evidence of such distrust is found in newspaper articles, resolutions adopted by horticultural and other associations, in the call for the convention by which this committee was appointed, and in the tone of the discussions at Bloomington. The ground of dissatisfaction appears to have been two-fold. Nothing in the previous life, so far as known, of the Regent selected by the trustees, afforded any adequate guarantee that he would not favor classical rather than industrial education, and the prominence given to classical studies at the outset awakened in the friends of the University a fear that it would become, like other colleges, a purely classical school for the training of men for the learned professions.

The committee, in obedience to the wish of the Bloomington convention, visited Champaign on the 20th and 21st of September. We saw and heard

much which was well calculated to dissipate our fears. The Regent, unfortunately, had made an engagement to speak at the Tazewell county fair, and was compelled to leave town within an hour after our arrival at the University. We were courteously treated by all the members of the faculty and by the resident trustees. Every facility was afforded for the prosecution of our inquiries in all the departments of the institution and upon the farm.

We found one hundred and ninety-six (196) male students in attendance (orderly, fine-looking young men) from various portions of the State, including twelve from other states; fourteen young ladies, who seemed to be assiduously pursuing their studies. About fifty of the students present were in the agricultural and horticultural departments, fifty-four in mechanical and civil engineering, sixty-five in chemistry, fifteen in comparative anatomy, one hundred and thirty-eight (138) in mathematics, twenty-three (23) in military tactics, fifty (50) in the commercial department, ninety-two (92) in English, sixty-three (63) in German, twenty-seven (27) in French and twenty (20) in Latin; none in Greek. All the students attend the lectures on history. From this statement it appears that only one-tenth of the students are studying the classics at all, and inasmuch as each student pursues three studies, only one-thirtieth of the working force of the institution is expended upon the ancient languages, whereas, in an ordinary college, from half to two-thirds of the working force would be so expended.

We were further assured by the acting Regent that it is the full purpose of the faculty to fulfill all laws enacted for the government of the institution, and to meet the requirements of the industrial classes by making it, in the true sense of the word, an industrial school in contradistinction to the ordinary colleges and professional schools of the country.

If this assurance is carried out in good faith, if students are left free to choose for themselves, where they have preferences, and honestly directed to take up industrial studies where they have not, we are happy to say that the University is on the high road to accomplish all that its friends desire; and we would exhort a liberal public to accord to it their fullest support, both of money and pupils.

We cannot too highly commend the action of the board of trustees in admitting female students to the benefits of the University, and we trust that the cities of Urbana and Champaign will promptly provide for proper boarding and lodging of those young ladies who may wish to attend from a distance, as accommodation in the University building is an impossibility.

The committee carefully and thoroughly, as far as their limited time would permit, examined the library, which now consists of 4,000 volumes, of which nearly one-half are specifically agricultural, horticultural and scientific, selected with much care and judgment.

In conclusion, we must be permitted to make one or two criticisms and suggestions.

The model farm contemplated in the law is not in a creditable condition, but is not yet sufficiently developed to show what it will be. No sufficient provision has yet been made for agricultural experiments.

The industrial and economical statistics of the State authorized by law are not collected with thoroughness and upon a sufficiently extensive scale

to make them of value. This might be made one of the most important departments of the work of the University.

We trust the trustees will make suitable provision for the performance of this work in the future.

LEWIS ELLSWORTH,
JOHN DAVIS,
FRED H. WINES,
WILLIAM STACY,
Committee.

After some discussion by Prof. Turner, Smiley Shepherd, Esq., J. Periam, Esq., the Regent and others, the report was adopted.

On motion it was resolved that it be the sense of this meeting that it is more important for the faculty of the Industrial University to discover new knowledge, than to teach that which is already known.

On motion of S. J. Davis, of Stephenson, it was

Resolved, That without recurring to the past, we approve of the present attitude, with its apparent progressive design, of the Industrial University, and accord to it our best wishes and efforts for its success.

Resolved, That the chair appoint a committee of five to call public attention to and enlist the efforts of the producing classes in the University, and its progress as an educational and industrial institution.

The Chair appointed the following committee:

Lewis Ellsworth, DuPage county; E. Daggy, Douglas county; Arthur Bryant, Bureau county, and S. J. Davis, Stephenson county.

A more detailed statement of the practical work of the several departments will best exhibit the true character of the institution:

THE AGRICULTURAL DEPARTMENT has been under the direction of Prof. W. F. Bliss, till he resigned the past summer in order to return to the care of his own large farms. Till his place shall be filled by a new appointment, the instruction in agriculture is given by other professors, assisted by lecturers from abroad. Dr. Miles, the eminent Professor of Agriculture in the Michigan Agricultural College, is to give a course of lectures the current year. The department has in charge a stock farm of 410 acres and an experimental farm of 160 acres. These farms have been lately furnished with large and convenient barns and other buildings, and have been brought into condition for a course of experimental cultivation, which is designed to illustrate the methods in vogue, and to test the value of new crops and cultures. A part of the State appropriation has been reserved for the purchase of blooded stock of several breeds, for experiments in breeding and feeding. Anatomical and other preparations and apparatus for illustrating animal husbandry have been secured, and collections of seeds, soils and agricultural implements are in progress. The department is designed to receive

a development commensurate with the gigantic industry it is to represent and promote.

The full course of instruction embraces Agricultural Chemistry, with the study of soils, fertilizers, foods, animal and vegetable products and manufactures; Vegetable Physiology and Botany, with the study of varieties under cultivation, and the methods of culture; Animal Anatomy and Physiology, as applied in all kinds of animal husbandry; Rural Economy, Rural Law, Rural Architecture and Engineering. To this is added Mathematics, History, Geology, Mineralogy, Zoology, Physics, Drawing, Veterinary Science, Political Economy, English Literature, and Modern and Ancient Languages, if desired by the student. No experiments of consequence have as yet been undertaken, owing chiefly to the unfit condition of the farms, but plans are being arranged for a full, if not exhaustive, list of experiments. Thus far the students of the agricultural course have been the most numerous class in the University, and have shown much interest in their studies. Many of them work on the farms or gardens, and thus partly pay their way.

THE HORTICULTURAL DEPARTMENT is under the charge of Prof. T. J. Burrill, professor of Botany and Horticulture. He is assisted by an orchardist, and a gardener and florist. The department has under its care about fifty acres of orchards, nearly forty acres of gardens and nurseries, and several acres of ornamental grounds. It has also two green-houses, with hot-beds, cold frames, and other garden structures. More than 50,000 trees are already in nursery for large forest plantations, to test the best methods for growing, the cost and value of artificial forests. Many trees are also gathered for an arboretum, and for shelter belts, and additional orchards. The young apple orchard, set out in the spring of 1868, contains over 3000 trees, and nearly 1500 varieties. More than twenty acres of the grounds and gardens have been carefully underdrained, the work, as well as the engineering, being mainly done by the students themselves. The course of instruction is similar to that of the Agricultural Department, with fruit culture, green-house management and forestry added. The course has been more recently organized, but is already attracting students.

THE MECHANICAL DEPARTMENT was fully opened in January, 1870, under charge of Prof. S. W. Robinson, who is a good practical mechanic and inventor, as well as a scientific scholar. With the aid of his students, he has manufactured an eight-horse power steam engine, and the most important furniture of a machine shop.

A carpenter's shop is attached, with benches, sets of tools, a buzz saw and jig saw, a mortising machine, a wood-turning lathe, etc. Though so recently organized, it has already accomplished work which gives the greatest promise of its future usefulness and power. Beside the manufacture of its own machinery, it has produced several pieces of philosophic and other apparatus of fine character, including a heliotrope for the U. S. Coast Survey; a machine for graduating thermometer scales, invented by Prof. Robinson; an Atwood's machine, to show the accelerated velocity of falling bodies; a combination spring table, to exhibit resultant and reflected motion; common and dipping magnetic needles, a fine brass instrument to exhibit the flow of liquids under various pressures, and models of a truss bridge and a truss roof, besides many others. These articles have been made almost wholly by the students themselves, under the direction of the Professor, and the foreman of the shop. They have also put in steam heating apparatus for the University building, at less than half the cost proposed by others; also the hot water apparatus for warming the green-house, and a large amount of work for the University and other parties. It is not to be understood from all this that the object of the department is to teach young men trades. The shop practice is designed to be simply illustrative of the principles of mechanical engineering, which are taught in the class room, and it is expected that each student of mechanics will take a certain amount of shop practice to render his course as thorough and practical as possible. Much additional work is performed by students to enable them to meet their expenses.

The course of theoretic instruction embraces mathematics of the highest forms: mechanical philosophy, physics, chemistry, the study of the motor forces, strength of materials, parts of machines, etc., and machine drawings; also, history, geology, zoology, botany, English literature, modern languages, and ancient, if the student desires. The department stands in great need of larger shops and rooms for apparatus, drawing and lectures. Though less than a year has elapsed since the department was opened, its shops are already crowded, and young mechanics are leaving their places to come here and become scientific mechanicians. The practical methods pursued here have already stimulated the spirit of invention, and several new and useful inventions have marked the first year's work. Prof. Robinson also has charge of the course in Mining Engineering, and is prepared to give instruction in it.

THE DEPARTMENT OF CIVIL ENGINEERING, united with those of Architecture and Mathematics, is under the direction of Prof. S. W. Shattuck, professor of Civil Engineering, assisted by Mr. James Belanger, architectural draughtsman, Mr. Alex. Thompson, civil engineer, and Mr. H. M. Douglass. The department is provided with engineering apparatus, surveyor's transit compass, levels, chains, stadia, etc., for all classes of surveying, and the classes are engaged in the field in making railroad, topographic and other surveys, and in making designs and working drawings for buildings and other structures. The course in civil engineering embraces all the studies of that in mechanical engineering, except the substitution of the several kinds of surveying, railroad, topographic, etc., for principles of mechanics, and field practice for shop practice, with some variations in the drawing course.

THE DEPARTMENT OF CHEMISTRY is under the charge of Prof. A. P. S. Stuart, assisted by Mr. Robert Warder. It has a working laboratory fitted up for a class of twenty-four students, and furnished with furnace, still, and other conveniences. It has also a balance of the finest construction, a beautiful binocular microscope, with polarizing and other apparatus, a spectroscope, Rumhkorf's coil, batteries, tubes, and other apparatus, with full supplies of chemicals, etc.

Here, as in Europe, this department is of great importance and popularity, and the new class just entering numbers over fifty students, while the tables were already nearly filled by the class of the previous year. The vast advances made in chemical science, and the wide and important applications of it in agriculture and all the useful arts, renders it necessary to provide facilities for instruction on the most liberal scale. In all the great leading universities and polytechnic schools it has been found requisite to provide large separate buildings, with expensive fixtures, furnaces, etc. It is said that none of the later laboratories in Europe cost less than $50,000 in gold, and those in our own country are, in many cases, equally capacious and costly. The vital relation of the Industrial University to all the scientific arts, makes the demand imperative for a speedy enlargement of the accommodations for the large and increasing classes which are required to study chemistry as a fundamental part of their courses. The full course in chemistry embraces organic and inorganic chemistry, chemical analysis, use of blow-pipe, reagents and spectroscope, chemical manufactures, the chemistry of the arts,

and such other scientific and literary studies as are deemed essential to fit the analytical chemist and pharmaceutist for their duties.

THE DEPARTMENT OF MILITARY TACTICS is under the charge of Prof. Edward Snyder, who also has charge of the classes in Commercial Science, and in the German Course. All the students not specially excused, are enrolled in the University Battalion, now comprising four companies, and are drilled in the evolutions of the company and battalion, and in the manual of arms. Besides this, there is a class in military tactics pursuing the subject as a regular study. The results of the military drill, thus far, have been such as to strongly commend its continued use. It promotes habits of order and precision, and affords a most healthful exercise. The knowledge of military tactics acquired may prove of great value to the country at large. Hundreds of young men are here fitted to act as drill-masters of the volunteer forces of the State in the dread event of war, and it is a question whether the national necessity already felt for a large increase of military education beyond what West Point can give, may not be wisely met by giving to the Industrial colleges of the country some additional facilities and means for military instruction. It is a grave question for the statesmanship of the times, to determine in what way the military strength of our country may be placed in a position to meet all the emergencies of the States and of the country at large. The Congressional grant already requires the Industrial schools founded under the act granting lands for agricultural education, to give instruction in military tactics. Why not make them the military schools of the nation, since the addition of military tactics does not at all interfere with their industrial work.

Of the literary studies, the *Department of English Language and Literature,* under the charge of Prof. Wm. M. Baker, deserves special notice. Prof. Baker, justly considering that an accurate knowledge of our own mother tongue is one of the most useful and practical of all our acquirements, and believing that the critical study of its wide and splendid literature will prove one of the finest instruments of sound culture, has arranged a course of studies in the English language and literature, which has for its object to give the student a clear view of the historical development of the language and of the chief authors of each great period, together with a thorough understanding of its genius and structure, and a ready mastery of it for use. The student, after an elementary course in rhetoric and composition, is led successively through the age of

Milton, of Shakspeare and of Chaucer up to the Anglo-Saxon writers, and then returns to study liberally and critically the field of modern and cotemporary literature, English and American. The genuine enthusiasm awakened by the course, among the large classes which pursue it, attests its value, and goes far to vindicate the utility of our English classics as an instrument of culture not inferior to the classics of Greece and Rome.

THE DEPARTMENT OF FOREIGN LANGUAGES, ancient and modern, except the German, is also under the general care of Prof. Baker, assisted by Mons. I. D. Foulver, teacher of French, and Mr. H. M. Douglass, teacher of ancient languages. The attention given to the modern languages is commensurate with their value in opening to the scientific student the learning of great cotemporary peoples engaged with us in the pursuits of science and the improvement of the arts. The presence of a liberal amount of scientific and other books and periodicals of the French and Germans, helps to create a practical interest in these languages, and leads to a practical use of the study. The classes are large and successful. The ancient languages are not neglected, though their study, like that of all other studies in the University, is left optional with the student. Their many vital relations to our own language and literature, as well as to the sciences, will always attract the regards of generous and aspiring scholars.

The courses in Natural History and Physical Science are taught by several teachers and lecturers, and these studies hold prominent places in the several industrial courses.

Dr. Warder, the eminent American pomologist, has been employed as lecturer on fruit-growing, and Dr. E. S. Hull, the State Horticulturist, has been engaged to give a course of lectures in his department of art.

Dr. H. J. Detmers, V. S., is this year giving the first course of lectures in Veterinary Science, and is to conduct during the winter session a clinic to illustrate the proper treatment of diseased animals.

In addition to the foregoing work, the University provides, each winter, a course of free lectures, occupying two weeks, on the several topics in Agriculture, Horticulture and Fruit growing. It holds also shorter lecture sessions at different places in the State, and thus extends its benefits to the more distant communities.

The departments of History and Social Science, and of Philosophy, are now filled temporarily by the Regent, Prof. Atherton, the professor of History, having resigned. It seems important that the

department of History, as also those of Geology and Natural History, and of Mathematics, shall be filled at an early day.

Such is a brief outline of the field now occupied by the University. Its work is but just begun, but its success, won over many obstacles and much opposition, already gives promise of a most brilliant future. The large classes which have already entered its several practical courses, proves conclusively that it is meeting a felt want of the State, and its success in the instruction of these, adds a new proof to the value of polytechnic education, and to the practicability of its union with University studies and culture.

Polytechnic Education in Europe

To understand fully the mission of the University, and to comprehend its high promise, it is necessary to notice the remarkable movement now going on in both Europe and America, in the work of Polytechnic education, or, as we term it here, Industrial education.

It is less than a century since the oldest Polytechnic schools were founded. For many years these schools struggled on almost unnoticed; looked upon as experiments of doubtful value. By degrees they began to exhibit their ripened fruits, and to attract public attention. Governments discovered in them an unexpected ally in the promotion of national industry, and in the increase of national power and wealth. Governmental aid was extended to them, and finally, the governments undertook their more general and effective establishment as a measure of sound political economy. Large and expensive buildings were erected for their accommodation, and immense sums were expended for apparatus to illustrate the various Sciences and Arts. Their fame increased with their usefulness, and the least enterprising States began to see their value and importance, and were driven, in self-defence, to join in the work of establishing them. All the German States, France, Holland, Belgium, Switzerland, Austria, and even Spain, have their National Polytechnic Schools, and the traveler finds them in nearly every large city of Continental Europe. And everywhere they are crowded with eager students. Millions are often expended for buildings and apparatus, and so popular have they become, that many of the oldest Universities are beginning to develop Polytechnic Departments, including agriculture.

The new Polytechnic School of Munich, has taken the name of *Polytechnic University,* and exhibits University compass in its departments and studies.

Their influence on the industries is not doubted. The best authorities ascribe the manufacturing power of Germany, Belgium, France and Switzerland, to their Polytechnic Schools. In the Universal Exposition, held in Paris, in 1867, a most unexpected proof was given of their power. The English manufacturers, confident in the extent of their long maintained supremacy, sent their fabrics to the Exposition, expecting to bear away, as in 1851, the chief prizes. But to their great surprise, they were beaten at all points. Their old European customers were beating them on their own ground, and even underselling them in their own markets. Alarmed at a result so threatening, an investigation was made, and England was told plainly, by Prof. Playfair, and others of her jurors, that the Polytechnic Schools of the continent had snatched the laurels from her brow. Her long continued supremacy as the work-shop of the world, was ended. The English Government evinced its practical wisdom by resolving at once to foster industrial education among its artisans and manufacturers, and as a foremost result of the discussions created, England has just adopted her first system of universal public education.

The demonstration of the high practical value of education, as applied to the industries, is of immense significance, both to education and to the arts. It affords a new argument of most telling force, for the extension of higher, and especially scientific education; and gives warning that the supremacy of any people in the arts is to be gained and maintained, hereafter, only by a thorough education of its laboring classes. In the world's great marts of trade, where the industries are on trial with their products, the best brains must win. With the progress of Science, the arts themselves become scientific, and the artisan must of necessity be a scholar. Especially is this true of the managers and leaders of our manufactories.

In America

Our country, starting later in the race, took at once a grand and characteristic stride, by making an immense appropriation of public lands to endow in each State a College of Agriculture and the Mechanic Arts. And in most cases the States have seconded the movement by securing large additions to the funds.

The Illinois Industrial University is the child of this movement in our own State. Its creation put Illinois into line with the great continental peoples. Linked to her name, her fame and her future industrial position, its success is vital to the great industrial interests

it is designed to promote. In the struggle for our fair and equal share in the trade and wealth of the world, our artisans will draw needed light and help from its instructions. To reach, however, its maximum of usefulness, it must have the same liberal support that the European Governments so wisely bestow upon their great Polytechnic Universities. The very character of its courses involves a more than ordinary expense for the apparatus of instruction. Scientific books are the most costly of all publications, and the yearly and rapid advances of science, compel constant additions to the library. Natural Sciences demand, also, their laboratories, cabinets and collections, their costly and extensive machinery of illustration and experiment.

The State should not, for a moment, deceive itself in respect to this. No more here than in the old world, can a great Scientific School be maintained without the most ample provision for scientific experiment and illustration. If American industrial education is to compete in the markets of the world with that of Europe, it must be equally endowed and equipped.

The managers of the Illinois Industrial University have already found the urgent necessity for a capacious laboratory building for its chemical department. This splendid science, extending its wonder-revealing researches into every nook of space and every form of material being, has made every art dependent upon its aid, and its crowded laboratories attest the felt importance of its learning. Already the University has over seventy students on the roll of its classes in chemistry, while its laboratory has tables for only twenty-four. Its able professor regards it as imperative and urgent that a laboratory with accommodations for 100 students, shall be provided, and this building should contain assaying and other furnaces for metallurgical experiments, for the mining engineers, and rooms for the collections in mineralogy, and the illustrative collections in the several mineral and other chemical manufactures, as well as for the chemical lectures and experiments. The Mechanic Arts are also asking shop room for the practice required of the students in Mechanical Engineering. It is a common appendage of the Polytechnic Schools of Germany, though labor is not always required of the student. The rapid success of the Mechanical Department, which was fully organized less than a year ago, has already outgrown the small temporary shop provided, and rendered it necessary to change the entire plan of instruction, or to secure more ample room for shops, models, and drawing classes.

It must be remembered that the terms of the Congressional grant recognize equally the rights of the Mechanic and the Agriculturist to the benefits of the University, and the catalogue proves that the mechanics are quite as ready as the farmers to seek its advantages. Already thirty-six students have entered their names for the mechanical course, and many others are inclining to it. The erection of a suitable building is greatly needed to give this department its co-equal rank and place among the industrial departments. The large and increasing mechanical and manufacturing interests of the State certainly may ask this favor at the hands of the Legislature.

New Building Needed

But the chief and most pressing want of the University is for class and lecture rooms and other public rooms. The University building accepted by the State is already insufficient for the large and increasing classes of the University. It affords only eight lecture rooms for use of thirteen daily instructors, and several of the classes are too large for any of the class-rooms. The trustees find themselves compelled, in spite of their serious reluctance, to lay the case before the Legislature of the State and ask relief. A new building ought to be built at once, containing class-rooms, cabinet and library rooms, and a large lecture hall. The provision for such a building cannot be long delayed, and sound policy would dictate that it should be begun at once in order to meet the already pressing need. It is no slight argument for granting the aid asked, that the teachers maintained by the endowment funds could teach a much larger number of students if their class-rooms would accommodate them.

Strong Reasons

The large amount already invested in the University affords a strong reason for adding the amount necessary to make it all productive. The establishment of a University necessarily involves a large expenditure. Many of the older universities and colleges have from one to four or five millions of dollars in buildings and funds. The State has nearly $650,000 invested in the Industrial University. It only needs suitable buildings to make it an institution of first class power and influence. Its industrial character instead of offering an objection, affords an irrefragable argument for such enlargement and support. No intelligent man will assert that the great scientific industries of the nineteenth century demand education inferior to that required by the professions. In extent of scientific

attainment and research it should be vastly superior. The Industrial University ought, in justice to the classes and the interests it is founded to promote, to be larger, richer and greater than the old Universities of more general education. They aim simply at fine scholarship; this aims at equally sound scholarship and its most practical applications. They seek to develop large brain-power; this proposes brain-power still larger, able to grasp those mightiest of problems of the arts and industries in which the support and civilization of the world are involved, and on which the wealth, power, and continued freedom of the country depend. No man of broad views, or of patriotic feeling, will ask that the Industrial Universities shall be narrowed to the mere technicalities of the arts. Nay, no wise stateman will *consent* even, that institutions having a mission of such grand and inevitable importance shall pause short of the highest development of learning and scientific power. In the mighty and surely coming contests of the future, when the industries of all the civilized nations shall grapple for supremacy, nay more, even for existence, in the markets of the world, these universities are our West Points for the drill of men able to organize and lead our laboring millions. Illinois — grand alike in its natural resources and in its rapid and powerful development, in its commanding central position in territory, and in the social, commercial, and political leadership it already begins to hold, and must inevitably occupy in the greater future — Illinois will not long consent that its Industrial University shall be second in rank to any on the continent. A wise and generous statemanship would seek to give it prompt and early development, that it might begin at once, and with full power, its massive, and wealth and power-imparting work. The generous youth of our State, its young men and women, have shown their eager readiness to fill to the overflow its industrial classes. Let the university be gifted with ample facilities to meet their largest needs, and to afford them the richest and most practical culture. Let us no longer suffer the disgrace that our most talented and aspiring youth must go by hundreds to other States, and even to foreign lands, to gain educational advantages refused them at home.

Statistics

The attendance during the past two years has steadily increased term by term, except in spring terms, when many of the agricultural students return to work upon the home farms.

The highest attendance at any one time during the year ending June, 1870, was 156. The total attendance of the year was 196. The attendance during the fall term of 1870, was 209. Total number of students now belonging to the university, about 230, fifteen of whom are young ladies. Of these, forty-four are students of agriculture, thirty-six are in mechanical science, eighteen are in civil engineering, twenty-one in military tactics (special), about seventy are studying chemistry, and from eighty to one hundred are in elective and general courses, though nearly all are taking some of the practical sciences as a part of their course.

Fifty counties have representatives among the students.

Assets

Value of lands	$86,000
" " University building, houses, barns, etc	75,000
Library, cabinets, furniture, machinery and apparatus	25,000
Interest bearing bonds, and lands located with scrip	424,000

Average Yearly Income

Interest on endowments	$27,000
Fees paid by students	3,000
Produce and rents	5,000
Total	$35,000

Average Expenditures

Salaries of faculty and assistants	$24,000
Expenses of board, and committees and officers	2,000
Fuel and lights	1,000
Ordinary care and repairs	1,000
Taxes on located lands	1,500
Stationery, printing, and advertising	1,000
Labor on farm and gardens	3,000
Mechanic shops	1,000
Insurance	500
Total	$35,000

Conditions of Admission

The law requires candidates *first* to be not less than *fifteen years* of age, and *second,* to pass satisfactory examinations in all the branches of learning ordinarily taught in the common schools. This latter requirement, when thoroughly met, and especially when united to some maturity of age and mental power, would probably

be found sufficient to enable the student to enter profitably on some of the scientific courses of study. But considerably higher attainments must be made to fit him to enter upon the more important scientific studies as well as the classical studies.

Hereafter all candidates must sustain a thorough examination —

1st. In the English language, embracing its rules of orthography, its grammar, and the analysis and composition of the sentence, with principles of punctuation and use of capitals.

2nd. In geography, embracing mathematical geography; the main principles of physical geography, including the mountain ranges, the river systems, oceanic currents, winds, climates, and general contour and character of the continents; and the political geography of North America and Europe, including boundaries, extent and capitals of the several States, Kingdoms, etc., with chief commercial towns and great lines of navigation and travel.

3d. In arithmetic, including the operations in simple and compound numbers, in reduction, in fractions, common and decimal, in percentage, ratio and proportion, and in formation of powers and extraction of roots. It will not be enough to be able to perform examples in these several rules, but the candidates must be able to give fair definitions of all arithmetical terms, used, and explain the rules and reason of the several operations.

4th. In algebra to equations of the second degree, including definitions of all terms used, the operations in entire and fractional quantities, the transformation and solution of equations, and the statement and solution of problems, both with a single unknown quantity and with several. It is earnestly recommended that the candidates shall have completed the elementary algebra.

5th. In the history of the United States, including the discovery and settlement of each State, the Indian Wars, the French wars, and the Revolution, with its causes, its chief battles, and its leading officers. The dates and places of all events must be well learned.

The examinations are both oral and written, and the candidates must answer correctly at least seventy per cent of the questions. Students wishing to study either the Latin or Greek languages, must pass through examinations in the grammars of those languages and in the authors usually required for admission to colleges.

Choice of Studies

All the studies of the University are elective, but several courses have been carefully prepared for the several industrial pursuits, and

the student is expected to follow these courses as far as practicable. It is also earnestly recommended that every student shall include among his studies some of those belonging especially to the industrial arts.

Labor

All labor is voluntary. As far as practicable, the University provides on the grounds, gardens or farms, or in the shops, labor for all who wish it, and earnestly requests all to join its labor classes. The work is paid for, (except the special shop-practice of the students in mechanical engineering,) at eight cents an hour, which may be increased, in cases of special skill and fidelity, to twelve and a-half cents an hour. The labor is regarded as educational, serving to give practical insight and skill, and to promote physical culture. During the Fall and Spring terms students readily pay their current expenses by their labor. In the winter session, the work is not so abundant, and the weather often precludes it altogether. Still there are some who pay their way, even in winter, by their work.

Expenses

No charge is made for tuition.

Incidental fee, $2.50 per term, or $7.50 a year.

Room rent to those rooming in building, $4 a term.

All students pay a matriculation or entrance fee of $10, on their first admission.

Board, with room, fuel and lights, $4.50 to $5 per week in private families.

Meals alone, in private families, $3 a week.

Meals at club-room, in the building, $2 a week.

Many provide their own meals in their rooms, at a cost of $1 to $1.50 a week.

Total expense for year, including fees, room rent, fuel, lights, board, washing, and books, varying from $100 to $200.

Ladies Department

Complying with an evident public feeling and desire, the Executive Committee, at the opening of the fall term, resolved to admit female students, and though but a few days' notice was given, fifteen young ladies passed the examinations, and were regularly matriculated. It seems desirable, if instruction is to be provided to meet woman's wants, that a department of domestic economy shall be added at an early day.

The University has now surmounted the unavoidable difficulties which attend the organization; most of its proposed departments are in actual operation, and the public mind, sometime disturbed with a serious distrust, has come to a better understanding of the plans of the University, and is lending it full sympathy and praise. The vista of the future opens seemingly clear and promising, and the high hopes of its early advocates and founders may yet be fully realized.

Among the people who were hesitant to indicate approval of the new University was Professor Jonathan Baldwin Turner, the man probably most responsible for its existence. Professor Turner was particularly disturbed by reports concerning the direction the University was taking. He feared that the University had not been true to the goals set for it by its early supporters.

But after a visit to the campus early in 1871, Professor Turner was able to report that his fears were ungrounded. In this speech at the laying of the cornerstone of University Hall in the fall of that year, Professor Turner gave wholehearted approval to Illinois Industrial University and wished it well in the future.

THE ADDRESS OF JONATHAN BALDWIN TURNER AT THE LAYING OF THE CORNERSTONE OF UNIVERSITY HALL*

Fellow-Citizens:

It gives me joy to meet you on this interesting occasion. For more than twenty years a little band of brothers, in this State, labored as well and as faithfully as we could for the promotion of Industrial education, in this great republic of ours. In this labor, no one of my comrades ever received one cent of public funds in payment for either time or expenses. We sought and accepted no offices or perquisites whatever, in connection with the enterprise; and not one single man, of that original band of brothers, holds any such relation to-day, or ever has held it, or to my knowledge ever sought to hold it. If, then, our hands are not clean, let those whose hands are clean, wash us, and make us clean.

At one time, as you all know, the whole enterprise seemed to us to stumble and fall; to come to nought so far as our day and generation were concerned. I say it so seemed to us; and however mistaken, we were honest in our view. Under the same conditions, we should still think the expenditure of funds here an entire waste to the State, which we could not approve. That was a sad and a dark day to us — to me one of the saddest and darkest days of my life. But we all decided not to attack the Institution: to let it live amid

* September 13, 1871. From the *Fourth Annual Report of the Board of Trustees of the Illinois Industrial University,* 1872.

its new surroundings if it could, even though we had no faith that it could. Then came the criticisms of its friends, who were supposed to know of its surroundings, deepening both our gloom and our despair, and intensifying all our natural prepossessions, prejudices and fears. We shut our mouths, bit our lips, and bitterly hoped for some better resurrection of our idolized principles, after we were in our graves.

But all this is now changed; and it is not only our duty but our great joy to change to meet the new conditions; doubly so when we reflect that the present board of trust and of instruction were, in no sense, responsible for any of those untoward conditions. For the first time I came to this University last winter to see for myself. I did not find any one of the Professors and Teachers either omniscient or omnipotent; not yet angels walking the earth with sublime grandeur, with wings at their shoulders, all plumed and ready for the skies. From the newspaper accounts I had previously read of them, I hardly expected this. But I found (or at least I fancied that I found) good, honest-hearted, intelligent men, prosecuting a great, arduous, and difficult public work — new in its ends and aims, and untried in its modes and methods — with a patience, a zeal, and a self-devotion worthy of their great cause; and when I have said that, I have said enough in praise of any set of mortal men that ever lived. I found, also, a corps of most courteous and well-behaved pupils, well worthy of their teachers. They frankly told me (what it is easy to see in any similar Institution under the sun) that they had made mistakes, and were striving to correct them; and expected to make more and correct them, too. What more or better did any man expect, who knew anything about the newness, the difficulties, and the natural and artificial obstacles of the great enterprise in which they are engaged. It will probably take a thousand years for a single one of these great free States to learn to endow and manage these Industrial Universities, in the best possible manner. But what of that? Shall we never attempt to learn the greatest of all possible arts, the preparing of our American youth for a true American life, because our art is difficult and our lesson a long one? I shall soon die; you will soon die; we shall all soon die; but these Institutions will live — live still to learn their art and their duty, and to bless their race, long after the oaks have grown and fallen again, and rotted over our graves. Here, then, is my triple joy. I come here again to-day to cast off and abjure all my former prejudices and prepossessions — if prejudices and prepossessions they were — and

to bury them beneath the corner stone of this new and beautiful edifice, now rising to our view. What greater joy can any man have than when he finds things better even than he had dared to hope? Such, in kind, is the joy of the angels when it becomes "meet that they should make merry and be glad, for this their brother was dead and is alive again — was lost and is found;" in this case, a resurrection a half century sooner than I, for one, dared to hope for it, only a few short years ago. Why, then, should I not this day rejoice?

This institution will still need, in the future as in the past, a magnanimous patience within, and a magnanimous forbearance from without its walls; our little and censorious criticisms can neither destroy nor aid it. Thank God, it has already, even though beyond our former hope, become too big for any such result.

It must now live! It ought to live! and it will live! The fly that can annoy the elephant cannot devour him, even though he may continue to keep him in an unseemly wagging of his tail. Do the best it can, this Institution will not and cannot do all we desire, for at least a round hundred years to come; though it may, and it can, and it will, do a good work to-day, and to-morrow, and forever.

Some lament because that only a small per cent. of the youth educated in our Agricultural Colleges remain, in after life, in industrial pursuits; and therefore deem these institutions a failure. Now, several, if not most of our older colleges were founded for the special and avowed purpose of training up the youth for the ministry of the Gospel. And yet it is doubtful whether five per cent. of their graduates ever in fact enter the ministry at all; and do we hear their trustees and guardians and patrons talk of abandoning these colleges because such is the result? Not at all: they have better sense than all that. They well know that after a young man has been educated by their methods, he will and must, to a greater or less extent, imbibe their spirit, become possessed of their animus, and tend to diffuse it over the whole surface of human society, in whatever profession he may be engaged. "Verily the children of this world are in their generation wiser than the children of light." If then these sons of our farmers and our friends are educated in our Industrial institutions — which are in no sense conventional, partisan or sectarian, but in all their methods, ends and aims, truly, grandly and broadly industrial, natural, scientific and American, and therefore christian — I care not into what particular professions they may choose to go in after life! This is a free country, and they have a right to go where they please: but wherever they may go, or in

whatever they may engage, they must and they will carry the broad, scientific, catholic, American and truly christian spirit of their *Alma Mater* along with them, instead of the narrow and scholastic spirit of caste and sect. We may trust them as our men, true sons of the Republic, and true sons of God, whatever profession they may elect, wherever they may rest, or wherever they may roam, the whole world around.

I know there are good and true men in our State and in all the States, who still differ from you and from me, in their views of American education. Some, and quite a large class, think that the State, as such, should confine its whole effort to perfecting the common schools, and leave the higher form of knowledge to take care of itself. But no State ever did, or ever will, keep up a full and vigorous supply of either knowledge or goods, at retail, which did not at the same time take care that its great wholesale supplies should be ever open and near at hand. The whole thing is absurd. Others say that political States cannot successfully endow and manage our higher universities; and that, too, in spite of the fact that no institution, worthy of the name of an university, was ever founded or endowed without State aid and patronage, on the face of the earth, or probably ever will be. It would be quite as becoming for a great State like Illinois to run abroad for all her goods and merchandise, as to do it for all her higher forms of knowledge; and what it is clearly impossible that individuals should do, in this regard, it is wise and proper that the State should do.

It is said that there is also in our State still a small class of seven-by-nine politicians, who occasionally sneer at the great cause of industrial education, and begrudge it the crumbs it gathers. Let them sneer. To all such in this State, and in all our States, I have but one answer to give in behalf of the farmers and working men of the Republic. We intend to keep on asking for endowments for each and all of these institutions throughout the land, until we have made each one of them, in some good degree, in all needful buildings, apparatus, perquisites and endowments, what they ought to be; and when they shed the full radiance of their united glory and light over every state and every hamlet on this continent, from sea to sea, we intend to point to them and say to these carpers, "these are all our stealings from the treasuries of the Republic. We obtained every dollar of them by the honest vote of a proud, a patriotic, and a grateful people; and now, where are yours? Can you, dare you show them to us?" And whenever their dishonest stealings — which

they cannot and dare not show — do not in fact amount to ten times as much as our honest ones, which we can show with great pleasure and pride, we intend to suspend all further applications, and give them a chance to get even with us again.

The mass of our people pay the taxes and fight the battles of the country, and whichever part is in power, they do none of the stealing out of the public treasury, and I, for one, am tired of the groaning and whining of the few who do it at all, whenever these masses ask for a few dollars out of the general or the State treasury, for some great agricultural or industrial interest of their own. I have no doubt that the majority of our people and our legislators, who are not thieves, will continue to give us all we may need in this regard, and that in despite of all these croakers, these institutions will at last achieve a great and glorious success. Let, then, these beautiful walls rise, as the monument of our past endeavor and the memorial of our plighted faith, if not *where* we preferred, still to become *what* we preferred; if not as our feeble forecast prescribed, still in that better way which He who alone can truly forecast and overrule all events, may prescribe and elect. Let them rise till the myriads who dwell upon these rich plains shall throng around to uphold, to endow, and to bless them, till their rising light shall shine far abroad over this great green sea of prairie lands, with its woodland isles and dales, to gladden every household, to bless every farm, and to enlighten and exalt every soul: till ministering angels shall come to greet and to bless their inmates with every morning sun, and bid them rest and sleep in peace with every evening shade.

ory, under whose guidance the University took form in terms of buildings, farms, experimental stations, curricula, and organization. These planners and supporters of the state university concept were the "activists" of their day, who worked to align higher education with the technological innovations and democratic impulses of nineteenth-century America.

In retracing the genesis of the University of Illinois — now on the threshold of its centennial observance — this volume records a significant chapter in the history of a national movement which today has culminated in "the most impressive set of agencies for higher education in the world."

DAVID D. HENRY is president of the University of Illinois. RICHARD A. HATCH is an Illinois State Legislative Intern at the University of Illinois.

THE STATE UNIVERSITIES AND DEMOCRACY

by Allan Nevins

The distinguished historian analyzes the birth, growth, maturity, and current status and problems of the state universities and land-grant colleges in terms of the needs, demands, and aspirations of democracy in this timely and important book. ". . . a masterly little book." — *The Times Literary Supplement.* "The story which Dr. Nevins tells is a vitally important part of the history of the United States, and he tells it with genuine understanding and enthusiasm." — *The Annals of the American Academy of Political and Social Science.* 1962. 171 pages. $2.95 (22s. 6d. net).

THE LIFE OF JONATHAN BALDWIN TURNER

by Mary Turner Carriel, with an introduction by David D. Henry

Here is a biography of a significant historical figure whose ideas in the fields of agriculture, religion, politics, and education were progressive and sometimes unorthodox and unwelcome. Turner's greatest contribution was to education — he was as responsible as anyone for the land-grant university system and for the founding of the Illinois Industrial University, now the University of Illinois. ". . . a real contribution to the Morrill Act Centennial. . . . The work provokes thought on today's educational problems." — *The Bulletin of the American Association of University Professors.* 1961. 12 illustrations. 267 pages. $5.50 (41s. net).

UNIVERSITY OF ILLINOIS PRESS Urbana · Chicago · London